[36 cont.]

Cooking and Cooking Utensils

354 Lumps of surface limestone are generally used as hearthstones.
412 Here and there, as a great rarity, one finds a pounding stone of quartzite.

To pound the veldkost, small mortars, carved out of wood, with conical or hemispherical bottoms are used. In case the mortars become damaged, holes are made on either side of the crack, and the flaw is drawn together with bast strips and also smeared over with resin. The shape of the pestle, which is from 50 centimeters to one meter long, is shown in Figure 7.

415 Originally these !Kung had no pots and probably had no
[252] way of boiling anything. The usual manner of preparing food even today is to roast and grill it on and between hot stones. Nowadays,
[431] every horde owns a number of pots acquired from the Okawango.
[482] These pots have bast or tendon plaiting around them, by which they are fastened when carried on the march. The Okawango people
[439] gladly exchange these water pots, which they have carried with them on the waterless stretch, for food from the Bushmen in the area between Karakowisa and Nuragas.

416 Small cast-iron tripods are a very popular article. A
417 longish, crudely carved stirring stick, as well as a piece of hardwood for arranging the fire, completes the inventory of the Bushman kitchen. Spoons are unknown.

Clothing

291 The clothing of the woman, as has already been repeatedly described, consists of a front apron and a back apron, made of soft leather, and a leather cloak something like a pelerine. Usually she also has a carrying hide for the baby. Generally, the child does
[854] not sit on her back, as among the Blacks, but on the side of her hip.
[415] In addition, the woman has the large veld bag in which she keeps the
[412] finds from her collecting. On the march, the woman is equipped with the simple digging stick, pointed at the bottom.

The men are clothed only with the modesty apron and in addition

[42 cont.]
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622
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778
[262]
1784
the mother's kin group. One of the tasks of the village chief is the guarding of the socha fire. Socha means pure or sacred or taboo. Foods that are prohibited for certain age groups or for one sex are "socha" for these persons. The word "socha" seems to me to be a very ancient one, or else it is a loan word from another language. Every place has at least two fires: the ordinary one, which is
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[596]
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available to everyone, and the socha fire for men only. When the village moves to another place, the family head takes the socha fire along. During the march veldkost is gathered. Once they have arrived at the new place, the family head starts a new socha fire under a tall tree and roasts the veldkost. The boys leave im-
[462]
mediately and go hunting, while the women and girls set up the windscreen. Whatever the old man has roasted at the socha fire he is supposed to eat by himself; ordinarily this is what he does. Finally a messenger arrives and announces that a head of large game has been killed. Hours pass; the old man simply remains seated there, while the women and children make themselves comfortable in the new windscreen. [Fig. 15 appears here.] The game is brought to the socha fire, and the meat from the legs and
[262]
shoulder blade is cut off and given to the women and children, who are never allowed to eat meat from the bone. All the rest is
[622]
consumed by the men at the socha fire. The village chief also has the task of organizing the celebration for the first veld fruits. The hordes that I visited no longer practice this custom. Vedder has described it for the !Kung of Gaub.

178
622
When Lieutenant Fischer rode from Namutoni to the Okovanggo in 1908, the Bushmen everywhere still had a tight organization and a common leader. When Captain François went beyond Grootfontein for the first time, he was given considerable support by the chief of the !Kung Bushmen. It is worthy of note that the famed copper mines of Tsumeb, on which the welfare of Southwest Africa depends to a great extent, were discovered by a Bushman chief (2). Since then the eastern !Kung have not had a

2. He himself was a half-breed.

chief. The northern !Kung supposedly still have one. The oldest chief I heard of was "χ'amme," the lion. He was a great huntsman.

[62 cont.]

278 one person after another stepped up to the pan and threw his share of snake poison into it. Then the pan was removed from the fire.
[535] The Bushmen now performed a new dance, in which they imitated the convulsions of animals dying from the poison. After another half hour the poison was clear, and when everyone had convinced himself that it was the right color, a red mineral powder was added and thoroughly stirred into it. Then poisonous spiders were taken out of the reeds and thrown into the [63] pan. These came from the Langen Mountain in the Cape Colony, in other words, had been brought from afar. When the mass had thickened somewhat more, the arrows were smeared with it and dried in the shade (ibid., p. 380).

595 These Bushmen, the M'Kabba, are monogamists.

563 Farini maintains (ibid., p. 171) that he met a black Pygmy who came from the tribe of the Kara-Kara north of Amboland (1).

1. At the mission station Urikualuthi I was told by the missionary, Mrs. Quarni, who has made most meritorious contributions to investigations of the country, that shortly before the war a number of black Pygmies who lived in the swamps along the Kunene had come to Chief Moala. She saw these people.

252 Concerning the food of the Bushmen, Dornan has the following to report: The Marsawa [sic] eat meat either roasted or grilled, rarely boiled, because they believe that the latter will
251 make them sick. The Bushmen of Basutoland cut the meat into tiny pieces, mixed it with fat, and then sewed it into hide sacks as preserved meat. As reserves in case of famine, the Kalahari Bushmen keep giraffe skins on tall trees. Veldkost is stored in turtle shells and ostrich eggs, as is water. The Basutoland Bushmen gathered grass seeds and stored them for times of hunger.

252 The tsama are prepared in the following manner: A hole is dug, and a fire is made in it. As soon as the soil is sufficiently

[63 cont.]

252 hot, the ashes and fire are taken out, the melons are placed in the hot soil, and the glowing ashes are thrown on them. The next morning the tsama are ready.

301 The largest ostrich egg beads are produced by the Masarwa.

532 Their dance masks are made with pods and cocoons, and
535 sometimes also small hide balls filled with little rattle stones.
323 They still know the art of pottery. White or red body painting is
302 customary.

304 A Bushman tribe at Ngami Lake is supposed to have the custom of removing the last joint of the little finger.

278 Dornan mentions the following medicines of the Masarwa: for black water fever, Anacampseros rhodesica; dysentery, Monsonia ovata and Euclea lanceolata. Other medicines: Cannabis sativa, Solanum nigrum, Lippia asperifolia, Crotalaria burkeana, Pterocarpus angolensis, Datura stramonium, Indigifera senegalensis, Bauhinia reticulata.

752 The Masarwa claim that they can only treat the bite of the puff adder. The body of the Lygosoma sundervalli is charred, and the powder is sprinkled into the wound. Every snake is killed, and
(751) its head crushed. Reportedly there are also inoculations against snakebite.

595 According to Dornan, monogamy prevails among the
836 Masarwa. Sexual intercourse before marriage is prohibited, and
684 incest and adultery are punishable by death. As a rule, the con-
584 sent of the girl is necessary for marriage; it is generally sufficient if the suitor presents his father-in-law with a head of big game. The hunting test is customary only among the Wankie Bushmen
582 and those of Bulalima. One may marry a girl from the same clan. Among those tribes that are totemistically influenced, one may
304 not marry a person of the same totem. Circumcision is practiced.
681 As soon as the boys and girls are about 12 years old, circumcision takes place, for which a stone knife is used. In the case of the girls, the clitoris is pierced with a stone point. Sexual intercourse
(836) between the uncircumcised is strictly prohibited. Occasionally the nasal septum is pierced at the boys' initiation. As among the
761 Bantu, every death is explained as sorcery by human enemies. In
764 olden times the dead were supposedly thrown into the bush;
178 nowadays they are sometimes buried in a crouching position in

/253 cont./

224 the large bullfrog, whose bass voice resounds in all the puddles during the rainy season. The flesh of the frog is boiled with the
● 252 skin and bones, pounded to a paste in wooden vessels, and then eaten. Among the insects, grasshoppers and termites are used for
222 food. Both are roasted. In the brief time that they are winged, the termites are lured in such great numbers to a fire maintained for the purpose of catching them that it is an easy matter for the Bushman to collect a rich booty in a few hours. A special delicacy in the Bushman household is wild honey, which, as I was able to ascertain, is extremely tasty /254/ and is to be found in quantity on the Omuramba omatako as well as in the Kaukau Veld.

825 The bullfrog is called ntchei by the Bushmen (Herero: otjisume), the termite, /ui (Herero: othohumboli).

The vegetable diet naturally changes with the seasons and is
262 quite varied. I shall attempt to give a brief survey, though at
824 the same time I am aware that it can lay no claim to completeness.

1. The chamá or taba (Herero: omatanga). These are the roasted kernels of the Kaffir pumpkin [melon?], widely known here, which produce quite a tasty dish.

2. The //ǔni (Herero: omarunga); this is the Heikum Bushman name for the palm tree that is common in this region. The edible parts of the tree are the apple-sized fruit, whose skin has a sweetish taste reminiscent of St. John's bread, and the soft interior of the trunk. The latter is a whitish, soft, fibrous pulp, which the Bush-
[252] men prepare by cooking and pounding.

3. A species of white mushroom called naú by the Bushmen, majova by the Herero. The mushroom grows during the rainy season especially along the edges of termite hills; the diameter of its cap reaches about 20 centimeters. It is eaten raw as well as
[252] boiled. I do not know whether it is true that excessive eating of this mushroom has a detrimental effect on mental activity, as the Herero aver — ejova, plural majova, is the Herero word for stupid.

4. The unki, a well-known species of onion, about the size of a hazel nut, called //au by the Bushmen, is very common and forms an important part of the kitchen provisions, not only among the Bushmen, but also among the Herero.

[252] 5. The //guitcha of the Bushmen, ussessenga of the Herero,

/254 cont./

262 824 [252] is a tuberous fruit, eaten roasted, whose taste is reminiscent of potatoes.

6. A similar tuberous fruit is the ondubi of the Herero; the plant has rose-colored blossoms and long lanceolate leaves.

7. The ǂrugu (Herero: omakungu), a type of cucumber. The plant is a climber whose fruits resemble our cucumbers; they reach the length of a finger and, when they ripen, become bright [252] red in color. They are roasted in ashes and eaten warm.

8. The //ǂniba (Herero: maramba), a small bush with a bean-like fruit, similar in appearance and taste to our broad beans.

9. The sng of the Kung Bushmen; this is a large climber with double-lobate leaves whose mighty root is greatly prized by the Bushmen as a water tuber. The fruit is the size of a walnut and consists of two cotyledons enclosed by a rind which in its fresh state is soft and becomes very hard when dry. Between the fruit and the rind there is a small quantity of a whitish, slimy fluid which keeps the interior of the rind /255/ lubricated. After re- [252] moval of the rind, the fruit is dried and roasted and then has the taste of the groundnut which is so common in East Africa. Its use has a distinctly laxative effect.

10. Like the Herero, the Bushmen are acquainted with other water tubers. The Herero word chue designates a smaller root with a very high water content, which has the shape and size of our beet.

11. The /a fruit of the Kung people is a nut slightly larger than the walnut, whose kernel, in a hard shell, tastes like our hazelnut. The hard inner shell is enclosed by a softer outer shell [252] which has a distinctively sweet taste and which the Bushmen boil to a sauce which in appearance and taste is distinctly reminiscent of applesauce.

291 There is not much to be said about the clothing of the Heikum. The men content themselves in most cases with a leather loincloth which is fastened in the back and front to a belt tied around the waist.

The women wear the same kind of leather cloth of slightly greater length around their loins and tie a second hide from one shoulder to the opposite hip.

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X137 *Terfezia* spp. (5031, 5616) Photograph 1.

Naron Bushman..... ˌku-tsʼi
Eastern ǂkhũ Bushman ˌtsu-tsʼɔ

In size, shape and colour these truffles resemble potatoes, but the skin is rough and they are not as heavy.

The genus Terfezia, which is allied to the European truffles, has been recorded from dry and sandy localities between the northern Cape Province and the Mediterranean region. There are 36 species, of which three are believed to occur in South West Africa and the Union. Some records are vague and incomplete, and cannot be checked. These southern species, all of which are edible, are not distinguishable except by microscopical examination. They may be found from April onwards to about July, when the season ends presumably through their disintergrating in the soil. Their presence depends upon the rainfall, as is shown by the following extract from a letter from Mr. G. Scholtz, of Ghanzi, whom I had asked to collect some for me. "Nature appears to be against you this year. I even offered five shillings per truffle, but according to the Bushmen (my offer was just laughed at) no rain, no truffles. And we certainly have had no rain, in fact the worst drought in Ghanzi's history."

It is uncertain whether they are root parasites or mycorrhizal fungi, and nothing definite is known as to the host plant favoured by any particular species. In the south-western Kalahari, near the Kalahari Gemsbok National Park, they are found in the dips between the sand dunes where *Aristida ciliata* is the dominant grass, but it has not yet been established whether they are connected with it or with some associated plant. Towards the Ghanzi area they were collected in a mixed grassveld of Aristida and Eragrostis species with scattered trees of *Acacia uncinata* and no *Aristida ciliata;* but here another species may have been involved.

222 The European truffles are usually collected with the aid of dogs or pigs, which can trace them by their scent, and rarely by two other methods. One of these is by observing where certain insects collect to lay their eggs, for their larvae feed on truffles and the eggs are laid near them. The other is to watch for cracks in the ground which the truffle sometimes causes as it grows. This is the method used in southern Africa. A good deal of practice is needed before it can be applied, for the cracks are slight, and are specially difficult to find where the surface has been disturbed by game or stock, or where they have been partly filled in by windblown sand, but matters are eased somewhat by the fact that there is seldom more than about three inches of sand covering the truffles and that they grow in patches.

252 They may be eaten boiled or roasted. The texture is like soft cheese.
262 They are not aromatic and the flavour is far inferior to that of the best European truffles.

Ophioglossum sarcophyllum Desv. (5142) Photograph 2.

X137 This unusual looking plant is one of the ferns. It is five inches high on the average, and somewhat fleshy, and consists of an erect stalk with a leaf-like undivided frond at the top. A thinner stalk which bears the spores rises from the mid-rib near the base of this frond.

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A few specimens were collected at Gam, on damp sand which was moist from the run-off from adjacent rock outcrops. It is usually found in places like this, where the dampness is conserved, but after good rains its distribution is not restricted, except that it occurs more in the open and does not grow under dense bush. In favourable localities it is sometimes massed, and may be collected in quantity. It occurs throughout southern Africa. 137X

It is used by various Native tribes as a spinach, and may also be eaten raw. It tastes like lettuce but is slightly sweeter and lacks the crisp texture of lettuce. 262

Typha capensis Rohr. (5302) Photograph 3.

Eastern !khû Bushman dza-dza

A cosmopolitan and well-known plant, known in South Africa as the bull-rush, and easily recognisable from its inflorescence which forms a compact brown spike two feet or more in length at the tops of the five-foot flowering culms. This is in two parts, variously divided so that the lower may be equal to the upper, or shorter, or longer. The lower part consists of the female flowers and is sausage-shaped and brown, with the flowering culm running through its centre. Immediately above this is a spike of male flowers, similar except that it is more open and often yellowish from the masses of pollen it contains. The leaves are strap-shaped, usually an inch wide and six feet long, erect and fairly rigid and very slightly twisted along their length. It is a gregarious plant and always grows near water. 137X

A little was growing round a permanent spring at the edge of Gautscha Pan, and was the only patch seen during the trip.

The top (male) part of the inflorescence is eaten raw by the Bushmen. It has the rich and familiar flavour of bee-bread. Dinter (1912:17) states that the rhizome of this plant is the thickness of one's finger and about two feet long, and may after drying and husking be beaten to a reddish meal which is rich in starch and may be used in the same way as meal from cereals. I have tried the rhizome myself. It is heavy and succulent when fresh, and loses water slowly. When dry it has a puffy outer zone of tissue which may be stripped off to expose a hard central cylinder containing the reddish starch to which Dinter refers. As the starch does not crumble readily it is difficult to beat out, and it is full of fibres which may however easily be removed by sifting. It may be boiled to make a brown porridge of good quality except that it is more glutinous than any porridge normally used by us. 252 262

137X

Mariscus congestus C. B. Cl. (5166) Photograph 4.

Naron Bushman..... n!ani

Eastern !khû Bushman !gewu

This plant is one of the sedges, a group closely related and similar to the grasses but distinguishable by certain rather subtle differences which most laymen as well as botanists are familiar with. One of the main ones is that their flowering stalks are usually three-angled and solid while those of the grasses are usually round and hollow. The species in question could not, in its withered winter condition, be named in the field, but bulbs which were collected grew well in cultivation and flowered in Pretoria that same

X137 year. They produce an erect and robust plant with bright green leaves and numerous spreading underground rhizomes on which more bulbs are borne a few inches below the surface. Some stolons are produced above ground as well, from among the leaves. They afterwards turn downwards, entering the soil close to the parent plant and thereafter behaving in all respects like the rhizomes. The flowering stalk is three-angled and unjointed, with a cluster of compact, spiky inflorescences at the top, some on slender secondary stalks and some almost sessile. The parent plant is in a sense annual, for both it and the bulb producing it wither at the onset of winter, but the fresh bulbs which have been produced form new plants, and the species is capable of spreading very rapidly by this means. The bulbs are rounded, half an inch in diameter with a sharp point at the top, and covered with several papery brown layers which may be removed to expose a pale nut-like body.

Sedges usually favour damp places, but this species seemed equally at home in seepy areas and well-drained ones, and in the sandy country near Nama Pan it was common nearly everywhere, sometimes scattered among the grasses but more often in patches. Its range is from Cape Town to the Mediterranean, and it occurs in Australia also.

262 The bulbs are edible, and seemed to be a fairly important food of the northern Bushmen. The taste is sweetish and they have a crisp tex-
●252 ture and a cloudy, very slightly astringent juice. Light roasting improves
222 the flavour. They are easily gathered by scratching away the top layer of soil, and their presence is often shown by the disturbed soil where they grow, for they are a favourite food with many birds and small animals, which scratch and burrow to find them. According to the *Flora Capensis* the plant "has been for nearly a century cultivated in Europe".

X137 *Hyphaene ventricosa* Kirk (5301).

Eastern !khũ Bushman !hani and !hmi

This palm is bushy when young, but loses its bushy habit as it matures, forming a long clean stem 40 feet in height with a crown of leaves at the top and often with a slight swelling near the middle. The leaf has a strong woody rhachis up to six feet long, slightly hollowed above and rounded below, with a row of sharp hooked spines at intervals of an inch or so along each margin. At its tip it bears the leafy part which is two feet across and folded like a fan. The fruits, a little smaller than a tennis-ball, are covered with a glossy brown papery skin, and are borne in clusters.

Old an half-decayed fruits were found in the neighbourhood of Nama Pan, presumably where they had been discarded by Bushmen, but the palm trees themselves were not seen in this area. Only one specimen was found, 20 miles to the north-east. It was immature and had neither flowers nor fruits. According to available records, it was growing near the southern limit of its range, which extends to northern Rhodesia and the Belgian Congo.

262 There is a quarter-inch edible mealy layer immediately underlying the
114 skin of the fruit. It is fibrous and dry but sweetish, with a pleasant flavour, and may be gnawed off the hard inner shell into which it merges.
[272] The kernel in the centre of the mature fruit is hard and bony and inedible,
[252] but Chapman (1868: II: 73) states that the milk of the young fruit may be used like that of the coconut, and that the whole of the young fruit may BE EATEN AFTER BOILING, "PULP, RIND, AND ALL."

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be eaten after boiling, "pulp, rind and all". Dinter (1912:21-22) says also that the Bushmen use the heart of the palm as a green vegetable, and that a sweet sap may be tapped from the upper part of the stem and fermented to make an alcoholic drink. He gives the yield of fruits from one palm as between 20 and 50 kilograms (48 to 120 lb.). His reference to the heart of the palm is obscure, but Chapman (1868:I:55-56), who is more explicit, says that this is the core of the young trunk.

Aloe rubrolutea Schinz (5135).

Eastern !khū Bushman n‖ɔru

This species was in full bloom in early August, and made a striking show with its spikes of brick-red flowers. The plants formed rosettes of leaves 12 inches across, producing a slender erect five-foot flowering stalk. Among the hundreds of speciments seen there were none arborescent, although elsewhere arborescent forms are common (Reynolds 1950: 328). Those seen at Nama Pan were similar in habit to *Aloe zebrina*.

Aloe rubrolutea was seen only on the rocky outcrops near Nama Pan and Gam, growing in patches of an acre or so, but it has a wide distribution extending from South West Africa through the Bechuanaland Protectorate to the northern Transvaal and Portuguese East Africa.

The flowers are stripped off the flowering stalk and pounded to make a spinach-like vegetable. Although the Bushmen said that they did not eat the leaves, they were tasted raw and boiled and were found to be juicy and not unpleasant, and to have no harmful effects. They would be a good source of water in an emergency.

Aloe zebrina Bak. (4995).

!hɔ: Bushman..... !ganja
‖ganakwe Bushman n‖ɔru
‖gikwe Bushman... n‖uru
Naron Bushman... n‖ɔru

The plant forms a rosette of rigid dark green leaves which have pale transverse bands and numerous sharp teeth along the margins. It may have a stem 30 centimetres long (Reynolds, 1950: 282), but those seen on the expedition were stemless. The flowering stalks were three or four feet high. The sap in the epidermis of the leaves is greenish-yellow. It oozes out of the vessels fairly quickly if a leaf is cut across, and hardens and changes colour on exposure to the air, becoming brown and glassy. The bulk of the sap, which is in the inner part of the leaf, is colourless and translucent, and does not ooze out if the leaf is cut.

Only one small clump of this Aloe was seen, on deep sand about 80 miles directly south-east of Ghanzi. It is, however, recorded from Angola and South West Africa and across the continent to the east.

The Bushmen stated that the leaves were a good source of water. One of these plants was sent to Pretoria and grew well in cultivation. On being tested, the leaves proved extremely unpleasant, not because of any bad taste but because their sap is in the form of a thick, revolting slime. Boiling or roasting did nothing towards making them more palatable. Either the Bushmen were confusing this Aloe with another species, or it

262 271 824 [114] is eaten only when they are in the greatest need. Reynolds (1950: 285), quoting W. B. Hooker, states that its flowers may be eaten after boiling, but I did not think of asking the Bushmen about this, and they did not volunteer any information.

X137 *Dipcadi* sp. (5163, 5307).

!h3: Bushman..... n!ɔm
Naron Bushman..... n!ɔm
Eastern !khũ Bushman n!umʃé:

Although the above-ground parts had been killed by frost, enough remained for the plant to be identified as a species of Dipcadi. The bulbs were two inches below the surface of the soil, in appearance like a small onion. They were planted in Pretoria, but although they were still alive two years after being collected, they had failed to produce leaves or flowers up to the time this report was written.

Specimens were collected at Nama Pan, in parkland on sandy soil. As the plant was recognised and named by one of the southern !h3: Bushmen who was with us, it probably extends into the Kalahari well south of Ghanzi.

[262] The bulbs are edible after cooking.

Scilla sp. near *Scilla lancifolia* Bak. (5190) Photograph 5.

Eastern !khũ Bushman tũ

This plant has a rounded two-inch bulb covered with a thick layer of dark brown papery scales. In the summer it produces three or four spreading leaves, usually six inches long but up to 10, and one and a half inches wide at the widest part. They are thin but fleshy, strap-shaped (but in section widely V-shaped near the base), and light green, sometimes faintly mottled with darker green. The inflorescence is four inches long and the flowers small and not conspicuous, with purple stamens and a recurved perianth.

It was common in shallow sand overlying rock near Gautscha Pan and Nama Pan but was not easy to find because the leaves and inflorescences had been frosted, and blown away by the wind by the time the expedition had reached those parts. A number of bulbs collected there produced leaves and flowers in Pretoria the following summer, and it was from these plants that the notes were made.

[252 262] The bulb is edible after roasting but I have not tried it personally.

It would be dangerous to experiment with plants like this if what the Bushmen say is true, for it could be easily confused with another species which has an inedible bulb. The inedible species (No. 5181) is shown in photograph 6 and may be distinguished by its longer bulb and longer leaves (10 inches long and over, and two inches wide at the widest part). They have a translucent fringed margin, are pointed, narrowly V-shaped in section and more numerous, about 12 to a plant. In addition, the

N137 Two storage organs of this plant were found by the Bushmen near Nama Pan in August 1955. They lay dormant for a further 16 months after being planted in Pretoria, then both plants grew out and flowered within a few weeks of each other. The parts above ground disappear during the winter for they are very susceptible to frost.

[262] The storage organ is edible. It has a pasty texture and little taste if [252] eaten raw, but is improved by baking.

Eulophia sp. nearest *E. pillansii* Bol. (5279, 5304) Photograph 9.

Eastern !khû Bushman ≠gɔ?ɔ

An erect stemless plant with four or five spreading glabrous grass-like leaves half an inch wide and 11 inches long, prominently three-keeled on the back and grooved above, and fairly soft and lax. They rise in tufts, each one from a corm the size and shape of a slightly flattened golf ball with "eyes" on the upper surface and short stout roots below. The corms have a brown skin covering a white fairly firm flesh. They are often linked together five or six at a time, and are to be found an inch or two below the sand. The above-ground parts die back during the winter and usually disappear without trace before the next season's growth begins. The plant flowers after the new leaves appear and has the flowers arranged alternately in an open inflorescence at the end of a 12-inch flowering stalk. They are yellow and green, and about half an inch long.

A few corms were found by chance in two places near Nama Pan, in the shelter of small thickets. They flowered in Pretoria but could not be matched with any of the named specimens in the National Herbarium and the species may be undescribed.

[252] The corms are edible raw or roasted. They were peppery when tasted [262] in Pretoria, probably because they had been planted too near the surface and had become green through the action of the light. At Nama Pan they were mild and tasteless with a pasty texture.

Eulophia sp. (5213, 5306) Photograph 10.

Eastern !khû Bushman ≠gawu

The corms of this orchid are a little bigger and coarser than those of the other species of Eulophia (numbers 5279 and 5304) but are otherwise similar. The leaves are erect, somewhat curved, eight inches long and slightly more than half an inch wide, pale yellowish-green, rigid and firmly fleshy, with a channel running down the upper surface and a corresponding keel on the lower surface. This plant grew well but did not flower in cultivation in Pretoria and the species has not been determined.

It was found in the same locality as the other Eulophia and under similar conditions.

[262] The corms of the two species are used in the same way by the Bushmen, and cannot be distinguished by taste or texture.

Ximenia americana L. var. *microphylla* Welw. ex Oliv. (5061) Photograph 11.

!h5: Bushman.....	n≠ ?uri
!ganakwe Bushman...	n≠ ?uri
!gikwe Bushman.....	≠ɔ?i
Naron Bushman.....	n≠ ?uri

Very like the following species (*Ximenia caffra*), but except for the flowers glabrous throughout and with smaller glaucous leaves which tend to fold along the midrib and droop, giving it a rather unattractive look. Its fruits are lighter in colour, and smaller. The two species were often found growing together, but no evidence of hybridisation was seen.

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[137] place being taken by a few thick fleshy erect lobes, and from the woody remnants of old flowers in this particular species it could be seen that they had four lobes. The two species recorded from South West Africa are *Hydnora africana* and *Hydnora solmsiana*, parasitic respectively on species of Euphorbia and species of Acacia. Number 5162 is either a new species, or one of the known ones parasitic on a hitherto unrecorded host. The material collected was inadequate for specific determination, and the seeds which were planted did not germinate.

This Hydnora was seen only in the immediate neighbourhood of Nama Pan, where it appeared to be fairly frequent.

The host plant is a straggly shrub up to six feet high, with grayish woolly leaves an inch long. It has the characteristic four-winged fruits of the genus, and many remain on the twigs through the winter. It was not seen in the country to the south of Ghanzi, but was common from Ghanzi northwards, and is widely distributed in Portuguese East Africa, the Transvaal and Rhodesia. A glossy-leafed form of it is also known, but was not seen along the route of the expedition.

[262] The whole mass inside the Hydnora fruit is edible. It is astringent and slightly sweet, and is eaten raw. The fruits would be difficult to find if it were not that they are eaten by various animals. A litter of [222 824] half-eaten fruits and fragments of rind and shallow burrowings often show where the fruits have been excavated, and where more may be expected. They ripen about the end of August.

Talinum arnotii Hook. f. (5256) Photograph 14.

Eastern !khû Bushman ‖gwi-ja (stems and leaves)
≠k'arɔ (tuber)

During the winter there is seldom any sign of this plant above ground for the branches wither and die back with the first frosts. There is a perennial tuber a few inches underground, irregularly shaped and up to a pound in weight, crisp in texture and exuding a little cloudy astringent juice when injured. It has a brown skin and a reddish-brown zoned flesh. Although it is often eaten into hollows, presumably by rodents and insects, it is not eaten by the Bushmen. The stems appear in September and form a loose mat three feet in diameter on the surface of the ground. They are reddish-brown, prostrate and sappy, and the leaves are dull green and fleshy, channelled down the centre on the upper surface and with slightly crystalline appearance. The bright yellow flowers, which are produced in midsummer, are an inch across and quite showy, but open only in the heat of the day. They have two sepals and five petals. The flower-stalk starts bending when the flowers are mature, and by the time the fruits are fully formed it is curved sharply back. The fruits are the size of a small pea, shiny green and pointed at the tip, and covered by the withered remains of the perianth. They become yellow when ripe, with a papery shell and seeds the size of a pinhead.

The tubers of this plant were often unearthed in the more open parts round Nama Pan. I am doubtful whether it should be kept separate from *Talinum caffrum*, which is distributed from the Cape Province northwards to the Sudan and is very variable in its leaves and habit.

[262] [252] The leaves and smaller branches of this species are used by the Bushmen as a green vegetable. They are usually prepared by being pounded in a mortar to a paste which is dark green and slightly slimy and has a faintly acid taste with a flavour of lettuce.

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Pollichia campestris Ait. (4963, 5040) Photograph 15. 137

A small grey-green bush with much-branched slender soft stems, fairly compact when growing in the open but usually found as a semi-scrambler up to four feet high. The leaves arise in tufts of about three, the tufts being opposite each other and at intervals of anything up to an inch along the stem. They are lanceolate and usually under half an inch long. The plant bears what at first sight appear to be fleshy translucent fruits like small white or yellowish mulberries, but which are actually parts of the flowers.

This is a widespread plant throughout Africa, and was seen at intervals all along the route taken by the expedition.

The fleshy parts of the flowers are edible and sweet, with a queer earthy flavour, and are loosely attached so that they may be easily collected by pulling the stems through the hands. The plant, however, did not appear common enough to be of importance as a food. [262]

Boscia albitrunca (Burch.) Gilg and Benedict (4998, 5208) Photograph 16.

!hɔ: Bushman.....	ᵑǂhun
ǁganakwe Bushman...	n|ʃu-ni
|gikwe Bushman.....	n|ʃu-ni
Naron Bushman.....	n|ʃu-ni
Eastern !khū Bushman	zā

This is a rather variable tree, sometimes with erect branches and sometimes with a spreading crown, usually bearing many thin twigs with much dead wood among them. The bark is sometimes loose, dark and coarsely fissured and sometimes white and flaky. The species was also often seen in the form of a many-stemmed shrub about four feet high. It is evergreen, and did not seem to be at all affected by the heavy frosts that were experienced in the central Kalahari. The leaves arise singly or in bunches of four or five from small knobs on the twigs, and are leathery and about one inch long and a third as wide. Although the flowers are small and inconspicuous as individuals, they are borne in masses towards the tips of the twigs and make quite a show. In the Cape and the Transvaal at least the tree appears to be sporadic in its flowering. The fruits are borne on half-inch jointed stalks, and are half an inch in diameter, pale-skinned and translucent, with several large stones surrounded by a thin, watery pulp.

The tree was scattered evenly throughout the country from Molepolole to Ghanzi and Gautscha Pan, and has been recorded from the Cape Province northwards to the tropics. It occurred singly, occasionally in open communities, but it was never seen to form thickets.

The fruits are eaten by the Bushmen, but they do not make pleasant eating, for the pulp has a rather slimy texture and a sickly-sweet taste. [262]

Sim (1907:123) refers to a meal which is prepared from the roots by drying and beating them. The resulting meal is then sifted to remove the fibres and may be made into a porridge. There are reports of gastro-intestinal disturbances after the eating of Boscia roots, but the reports have not been confirmed, and Steyn (1934: 561) fed large quantities to a rabbit without ill effects. It is suspected that people are susceptible only when they are not accustomed to this food. The Bushmen were not asked about their use of the roots, and did not volunteer any information. [252] [114 124]

The older trees are often hollow, and form natural reservoirs for rain water which is tapped by the Bushmen. (See Adansonia.) 312 824

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The following observations were made in the Transvaal near Pretoria, where infestation by *Cirina forda* is frequently so heavy that the affected trees may be readily recognised from a distance from the way in which the leaves are stripped. The caterpillar is prepared for food by being grasped by the head and squeezed through the thumb and forefinger of the free hand with a milking action. This clears out the bowel contents, and no further preparation is necessary before the boiling which follows. The head is rather hard and may be removed, but this is not necessary. After light boiling or roasting the caterpillars are dried in the sun and may be stored without deteriorating for several months. They are slightly oily but crisp in texture, with the smell and flavour of kippers.

252

[251]

Bauhinia esculenta Burch. (5160) Photographs 19 and 20.

137X

Eastern !khû Bushman tsi: (the seed)
n||q (the storage organ)

This plant is a runner in open grassveld, with numerous slender vines up to 18 feet long, the youngest parts of them covered with a fine brown tomentum. They bear inch-long Y-shaped tendrils, but the plant is not a climber. The vines die back during the winter but do not disintegrate as readily as those of the Cucurbitaceae, and are conspicuous until the new runners are produced from the perennial underground stem. The leaves, which are soft and reddish-brown when young but turn leathery and glaucous as they grow older, are deeply bilobed, with a small spur between the lobes. The plant bears showy yellow flowers in December, and the pods ripen from April onwards. At first they are soft and reddish brown, then light green and, when ripe, brown and woody. They contain up to six flattened seeds about the size of one's thumb nail, consisting of a hard shell and a soft nutty edible inner part. The plant is easily seen because of the craters it forms where the soil is stony—craters a yard or more across, edged with a ring of stones which appear to have been forced to the surface by the stem beneath. The details of this crater formation, however, are not known.

This Bauhinia is curiously patchy in its distribution. Although it is plentiful in some places near Vryburg, it was not seen along the route of the expedition until a point 400 miles north of Vryburg, that is, 127 miles before Ghanzi was reached, and I have no record of it after leaving the Ghanzi area until the expedition crossed the border into South West Africa near Gam, after which it was again plentiful. It occurs in communities sometimes miles across, with the plants in these communities scattered 20 to 30 yards apart. On the expedition it was seen growing only on deep sand or where there were outcrops of limestone, and near Pretoria it has so far been seen only on the dolomite, but it has been grown successfully in Pretoria on neutral shaly soils. It has been recorded from the northern Cape Province, the western Transvaal, the Bechuanaland Protectorate and South West Africa.

Although the seeds are not pleasant to eat when raw, they are excellent after roasting, and analysis figures show that they are rich in protein and oil. The roasting should be carried out slowly, otherwise they may shatter with a rather disconcerting report, and to avoid this they are often roasted in sand, which probably gives a slower and more even heat. They may also be boiled to make a porridge or a drink. They will last through the winter in the field without spoiling but become scarce towards the spring, probably through being covered with wind-blown sand and being eaten by animals.

262
252
146

262 252 [222] The sappy young tuber makes a good vegetable after baking or boiling. Those dug up by the Bushmen were about two pounds in weight and would not have been more than a few seasons old, for it is known from specimens grown from seed in Pretoria that it takes about ten years for them to reach 30 pounds. Burchell (1824: 589) says that they are astringent, but on tasting the 30-pound one mentioned I did not find it so. It was, however, rather tough and leathery.

With breeding, this might become a useful plant of cultivation.

X137 *Bauhinia macrantha* Oliv. (4887) Photograph 21.

!hɔ: Bushman.....	ǂintɛ
!ganakwe Bushman...	n|an|hɛ
ǂgikwe Bushman.....	nǂanǂɛ
Naron Bushman.....	nǂiǂei
Eastern !khū Bushman	ǂǂwa

This species is usually a rigid three-foot shrub, but grows up to six feet where protected from fire and is sometimes found as a weak scrambler with stems up to 12 feet in length. Dinter (1912: 28) records one in the form of a tree five metres high, but this is quite exceptional. It has thin rather wiry twigs, some slightly curled at the tips, and alternate bilobed leaves which are shed during the winter. The younger parts are minutely hairy, but soon become glabrous. The flowers are borne at the tips of the twigs and are pure white and showy, with a pleasant scent and crisped petals. The pods are four inches long and one inch broad and contain five or six irregularly-shaped flattened beans.

Bauhinia macrantha has been recorded from near Molepolole, but is probably localised or uncommon there, for on the expedition it was first seen 60 miles northwest of Molepolole. From there on it was common, although there were occasional gaps in its distribution. It forms communities in open sandy grassy country, usually with the tips of the bushes just showing above the grasses, and has been recorded from the Transvaal, the Bechuanaland Protectorate, South West Africa, Rhodesia and Angola. It has grown well as a cultivated ornamental shrub as far south as Grahamstown.

252 262 The ripe beans are extracted from the pods, roasted peeled and pounded into a pleasant-tasting coarse rather gritty meal, edible without further preparation. The beans may also be used when they are green, but then it is more convenient to roast the whole pod so that it can more easily be opened. They are not eaten raw, for unless cooked they have a burning taste. The pods are easily opened when mature by bending them across the middle, when the two halves spring apart. The halves form spirals as they dry.

The importance of this species as a food plant was shown by the heaps of empty pods which were found at many Bushman shelters and Bakalahari villages. There is, however, a great deal of labour involved in preparing the meal, because although the beans have a thin shell and are thus easy to crack, it still takes about 1,500 of them to produce a pound of air-dry meal.

A note on one of Schoenfelder's specimens in the National Herbarium states that the root is also edible when roasted.

Like *Bauhinia esculenta*, this might be a useful cultivated plant if improved by breeding.

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137X

Vigna dinteri Harms (5227, 5310) Photograph 22.

!hɔ: Bushman..... |iri
Naron Bushman..... |iri
Eastern !khû Bushman ʃa:

A leafy twiner which climbs through trees and shrubs to a height of six feet or so. It produces numerous slender stems like a runner bean, and the leaves too are similar, being alternate and made up of three pointed and often lobed leaflets two inches long and half as broad. The terminal leaflet has a stalk over a quarter of an inch long, but the side leaflets are very shortly stalked. There are two narrowly triangular stipules where the leaf-stalk joins the stem, an eighth of an inch long and fixed at the base. The whole plant is finely hairy, but less so on the upper surface of the leaves than on the lower. The flowers are also like those of the runner bean, creamy to brownish-yellow, and are borne several at a time on a stalk up to five inches long. The pods are three inches long, circular in section and less than a quarter of an inch in diameter, and the seeds are bean-shaped but small, the size of a match-head. On a branching system of roots nine inches below the surface of the soil are borne swellings the size of potatoes, but more regular in outline and without the lobing which is so common with potatoes. In shape they vary from spherical through ovoid to long and only slightly thickened, and arise apparently in no particular order, for very small ones and large ones may be found next to one another on the same root, the spacing between them ranging from a fraction of an inch to a foot. The axis of the root (which is usually a little less than a quarter of an inch thick) passes through the centre of the swellings. As the plants were seen during the winter, there was very little remaining of the leaves and stems, and I have no information as to their frequency. Only two specimens were found, both in the neighbourhood of Nama Pan, and both in fairly thick mixed scrub in sand. Because of their habit of growth, it is unlikely that they would be found in open grasslands. The root swellings were planted in Pretoria and produced vigorous plants which flowered and set seed normally. The swellings themselves, however, were found to have been heavily infested with eelworm in their new habitat, and when they were replanted no further plants were produced.

Vigna dinteri has seldom been collected, and, as far as I know, only in South West Africa, though it is very likely that it extends into Angola and the Bechuanaland Protectorate as well. The fact that it is known to the !hɔ: Bushmen indicates that it may extend into the central Kalahari.

The swellings on the roots are edible raw or cooked, and are a pleasant and satisfying food. When raw they have a flavour which has been likened to that of grean beans. This is fainter after cooking. [262] [252]

It would be worth while investigating this plant with a view to bringing it into cultivation.

Vigna triloba Walp. (5257).

Eastern !khû Bushman ga··ni

Although occasionally reported as a trailer in grasslands, the more usual form of this plant is a twiner very similar in habit to *Vigna dinteri*. It has the same type of trifoliolate leaf as well, but the leaflets may vary widely in different plants, being simple or lobed, hairy or almost glabrous, sometimes long and narrow and sometimes almost as broad as they are long. Some of the forms would be indistinguishable vegetatively from *Vigna dinteri* if it were not for a difference in the stipules. In *Vigna*

X137 *triloba* they are what is known as dorsifixed, that is they are fixed a little way up from the base so that the stipule is free at both ends. The flowers are the same size in the two species and have the same long stalk, but those of *Vigna triloba* are predominantly purple. They tend to open in the early morning and to close during the heat of the day.

Vigna triloba is reported from a variety of soils and is widespread through southern Africa, but it was not seen on the expedition until the Nama Pan area was reached.

262 It has a finger-thick tap-root which is edible after boiling or roasting,
[252] although fibrous and slightly bitter. In mature plants it may extend downwards further than can conveniently be dug, but it is easily broken off. There appear to have been no previous records of its use as a food plant.

X137 *Commiphora pyracanthoides* Engl. (5137) Photograph 23.

Eastern !khũ Bushman n|ño

A deciduous, rigid, twiggy two-foot shrub with spine-tipped twigs, branches that curve downwards, and a bark that is pale green and flaky on the older parts and grayish on the young twigs. The flowers are less than a quarter of an inch long and inconspicuous, and are borne in bunches on small knobs scattered along the twigs. Male and female flowers are on separate plants. The knobs also bear the leaves, which appear after the flowers and are glaucous, simple and finely serrate, and about three quarters of an inch long and half an inch wide. The fruits are "ovoid, about the size of a green pea, though reddish brown when ripe. When the fruits are ripe, the fleshy covering may be easily split apart in two halves exposing the black seed with a red aril covering it partly at the base and extending in four slender 'fingers', producing an intriguing pattern". (Codd, 1951:87.)

The species extends from South West Africa to the northern Transvaal, but was uncommon in the area round Nama Pan. One specimen collected there was grown in Pretoria. Leaves and flowers were obtained in the summer following, and from this material the determination was made possible.

[262] The plant exudes an edible gum from injuries and is a useful source
312 of water in an emergency, the water being in a sappy underground organ
824 which is like that of one of the following species of Commiphora, No. 4994. It is known as a water plant among the Bantu of the Transvaal as well.

X137 *Commiphora* spp. (4994 edible, 5030 inedible).

4994		5030	
!h5: Bushman..	dʒã	!gikwe Bushman	!ana
!gikwe Bushman	dʒã		
Naron Bushman	!uri		

Two species of Commiphora were collected in the Kalahari south of Ghanzi. They were completely deciduous rigid two-foot shrubs with many sharply-tipped twigs and a flaky bark. At first sight they were identical, and even close examination revealed no bigger difference than that one of them was a little more of a thicket than the other and slightly
8.24 grayer. The Bushmen, however, stated emphatically that the grayish one
[278] was poisonous and the other not. They said also that the grayish one
[825] WAS THE HOST OF THE INSECT WHICH THEY USE FOR MAKING THEIR ARROW POISON, AND THAT IT HAD HARDER ROOTS THAN THE OTHER.

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was the host of the insect which they use for making their arrow poison, and that it had harder roots than the other. The fruits, flowers and leaves might have shown the difference clearly, but no trace of them could be found, and though plants were sent to the Transvaal for growing they failed to become established.

In spite of its unpromising appearance, the non-poisonous one is a useful source of water. This is in a sappy unbranched vertical underground part about an inch and a half thick. The Bushmen excavate down its length as deeply as they can reach, then break it off and withdraw it. They remove the thin outer skin and chew the remaining part, which is crisp and has a little tasteless sap. As a source of water it does not compare with the various species of Cucurbitaceae—weight for weight it contains far less, and the labour of digging it up is considerable. However, it must be a reliable standby when the Cucurbitaceae are not in fruit, and in the central Kalahari it is plentiful. In the southern part it is apparently absent, for it was not seen until 256 miles north-west of Molepolole.

Dichapetalum cymosum (Hook.) Engl. 5109, 5266, 5338 Photograph 24.

Eastern !khû Bushman ma-l

This plant produces a number of slender erect woody stems up to 12 inches high, sparingly branched and often buried in the sand at the base. The leaves are four inches long, numerous, sessile, alternate, broader in the upper half where they are about one and a half inches across, and tapering at the base, with a stiff papery texture and with veins prominent above and below. They have a slight bloom on the upper surface and the younger leaves at least have a pair of narrow hairy stipules at the base. The younger parts of the plant are hairy, but the hairs wear off with age, and during the winter the leaves turn brown and hard and finally drop. The flowers are scented and have white petals forked at the end, but as they are small and nearly covered by the sepals, they are not conspicuous. The fruits are like a loquat, and may be brown or yellow. The have one or two big seeds covered by a little flesh.

Dichapetalum is distributed widely but patchily from the northern Transvaal through to Angola and Rhodesia. On the expedition it was seen for the first time between Tsau and Kaikai, and beyond that it was fairly frequent but scattered. It was usually in open situations, and seldom where there was dense tree growth.

Though the leaves are extremely poisonous, the flesh of the fruits is harmless and is eaten by the Bushmen. They emphasised that the flesh only could be used, and that the stone was poisonous. They did not mention the skin, but the following note on Schoenfelder's specimen 31, in the National Herbarium, indicates that it, too, is poisonous:—

> "Fruits like small yellow oranges are eaten peeled in great quantities by the Kung Bushmen. When still green can be eaten after baking in hot ash. Used like fruit, fresh. The peel of the fruit is stamped and mixed with other food to poison stealing dogs (Diriko)."

Marloth (1913-25: II: I: 120) and Engler (1912: 577) also refer to the edibility of the fruits.

There are four other plants of very similar appearance which could be confused with *Dichapetalum cymosum*, and although they were not collected on the expedition, their distribution does overlap. They are *Pachystigma pygmaeum*, *Pygmaeothamnus zeyheri*, *Parinari capense* and *Diospyros chamaethamnus*. The first two bear inedible fruits and may be

X137 [262] distinguished by their having opposite leaves. The latter two bear edible fruits and like *Dichapetalum* have alternate leaves. The differences are that *Parinari capense* has leaves dark green above and covered with a white felt below, and that *Diospyros chamaethamnus* has no stipules.

Another species, *Dichapetalum venenatum*, has been described, but is in my opinion not specifically distinct from *Dichapetalum cymosum*.

Ricinodendron rautanenii Schinz (5336) Photograph 25.

Eastern !khũ Bushman ,ǁk"a:

The trees seen on the expedition were about 25 feet high and were then (at the end of August) quite bare, resembling slender baobabs, with similar but thinner stems, and smooth bark and stubby branches. Specimens collected elsewhere showed that the leaves are digitately compound, with about five leaflets and two prominent green glands at the top of the leaf-stalk. They are dark green above and pale below and covered with a pale to brownish powdery wool which is found on the young twigs and fruits also. The trees are either male or female. The small creamy flowers are borne in bunches towards the tips of the twigs and the female flowers give rise to reddish fruits the size of a small plum, consisting of a thin pulp surrounding a very hard nut. This is light coloured like an almond, thick and strong and marked all over with numerous small pores.

The only trees seen were on heavy sand near the banks of the Eiseb omuramba, 29 miles from Gam on the way to Windhoek, where they were dominant in a belt several miles wide. They formed a woodland, with the trees spaced about 25 yards apart. Herbarium records show that this is the usual mode of occurrence. The species has been recorded from South West Africa, the Bechuanaland Protectorate, Rhodesia and Portuguese East Africa.

252 262 The pulp of the fruit is edible raw or stewed. It does not readily go bad, but in time it dries and shrivels and in this condition, turned hard and crumbly, is still a wholesome food, edible raw or cooked. The stone contains one or two firm white-fleshed kernels which are, like the pulp, edible raw or cooked. The tree is an important source of Bushman food because of the quality and quantity of its fruit and because the fruits remain good for a long time even without being stored. Those seen on the expedition were on the ground beneath the trees and were still perfectly [312 824] good to eat. The tree is additionally useful in that it sometimes collects and holds rain water in hollows in its trunk (see Adansonia).

X137 *Sclerocarya caffra* Sond. (5292) Photograph 26.

Eastern !khũ Bushman -gai

A few mature specimens were seen, about 20 feet high, and a few young ones. The mature trees had a single clean bole with a flaking bark and a branching rounded crown, and were very different in appearance from the young ones which consisted of four or five thick and sappy unbranched stems about five feet high, with a smooth brown bark. This was in August, and all were quite leafless. The following description is taken from Codd (1951):— "The leaves are pinnate with three or four pairs of well-spaced leaflets and a terminal leaflet. The leaflets are oval, smooth, tapering to an abrupt point and are about one and a half inches long and one inch wide. Flowers are inconspicuous and are produced in small sprays just before the appearance of the young leaves, some trees

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The plant was widely distributed along our route, sometimes in the open grassland and sometimes in the belts of woodland, but was not common. It has been recorded from Angola, South West Africa, the Bechuanaland Protectorate and the Transvaal.

The fruits are edible but not very palatable, for they consist of large stones and only a little pulp, sweet and slightly mucilaginous. Nevertheless, according to a note on one of Schoenfelder's specimens (Schoenfelder No. 8, in the National Herbarium) they are a staple food not only of the Bushmen but also of several Bantu tribes, and can be kept when thoroughly ripe.

Grewia flava DC. (4941, 5024) Photograph 30.

!hɔ̃: Bushman.....	ˌnǀa:
ǁganakwe Bushman...	ˌkʻum
ǀgikwe Bushman.....	ˌkʻwam
Naron Bushman.....	ˌkʻum
Eastern !khũ Bushman	ˌnǀŋ

A rigid shrub about five feet high with numerous erect straight stems, often branching below the soil and so appearing unconnected. They are softly hairy when young. Old stems have a smooth dark bark and are sometimes slightly angled. The serrate leaves, which are shed in winter, are dull gray-green above and covered with a fine silvery down below, and make an attractive background for the bright yellow flowers which come out in midsummer. The fruits are half an inch across, usually four-lobed, and brownish-yellow when ripe.

Grewia flava is known from the four provinces of the Union, and from South West Africa and the Bechuanaland Protectorate. It occurred nearly everywhere along the route of the expedition and was one of the commonest shrubs of the central Kalahari, but only one of all the thousands of plants seen was in fruit.

The fruits have a little edible sweet pulp surrounding the seeds. They are an important Bushman food, not so much because of their quality as because of their abundance, and because they can be kept if they are first dried. They are then soaked in water or cooked before being eaten.

Grewia flavescens Juss. (5053).

A lax deciduous shrub or scrambler up to 12 feet in height, with slender stems which often become four-angled in older specimens, and with leaves, flowers and fruits similar to those of *Grewia retinervis*. There was little of it fruiting, but whether the season was over or whether it is naturally not a heavy yielder is uncertain.

This species has a wide distribution through tropical Africa. It was not seen south of Ghanzi, but was scattered from Ghanzi northwards to Gautscha Pan.

Its fruits are eaten by the Bushmen. As most of the Grewias were leafless and as there were more species towards the north, it became increasingly difficult to estimate the frequency of each when once the Ghanzi area had been passed, and nothing can be said as to the relative importance of the northern species in the Bushman diet.

X137 *Grewia retinervis* Burret (4875, 5066) Photograph 31.

!h5: Bushman.....	⊙b5:
ǁganakwe Bushman...	ǁ?ani
ǁgikwe Bushman.....	ǁgani
Naron Bushman.....	ǁgani
Eastern !khū Bushman'	!gwa

A straggly many-stemmed five-foot shrub, sometimes a weak scrambler up to 10 feet high. The stems are half an inch thick at the base, rounded and slightly woolly when young, slightly flattened and glabrous when old, and tough and pliant. Its leavers are alternate, pale green, one and a half inches long and an inch wide, ovate with a pointed tip, toothed, and roughly hairy to the touch. They wither and fall soon after being frosted, but if out of reach of the frost remain on the bushes at least until the end of July. The plant bears spreading yellow flowers half an inch wide, and fruits the size of a pea, with a papery brown skin enclosing a few large pips and some fibrous mealy material. *Grewia retinervis* is closely allied to *Grewia flavescens*, so much so that I doubt whether the two should be considered anything more than varieties of one species. The differences are that *Grewia flavescens* is usually taller, and not so conspicuously veined on the upper surface of the leaves. Mr. B. de Winter, of the National Herbarium, Pretoria, has observed also that its older stems are square in section and those of *Grewia retinervis* are flattened.

Grewia retinervis was scattered over most of the area covered by the expedition, and common in the central Kalahari, specially in open grassy country. It has been recorded from the northern Cape and the Transvaal as well as South West Africa and the Bechuanaland Protectorate.

262 (251 252) The fruits are edible. They ripen in winter, and have a slightly sweet taste and a pleasant flavour. They may be stored after being dried, and are then soaked or boiled before being eaten. The crop, if one may judge from the 1955 season, is abundant, and the amount fairly constant for all the bushes. The fruits form an important part of the Bushmen diet, [146 147] although little of them appears digestible. The roughage is voided almost unchanged, in enormous faecal masses up to two and a half inches in diameter.

824 372 The dry stems of this plant nearly always contain the tunnelings of grubs, and the tunnellings are packed with their excreta in the form of a brown, pith-like substance which forms a useful tinder. The Bushmen split the stems down the centre, make a slight depression in the flat surface and use this as a socket for the fire-drill.

X137 *Grewia* sp. aff. *Grewia bicolor* Juss. (5056).

Eastern !khū Bushman gamak"wɔ:

A slender shrub up to six feet high, with many sparingly branched stems. The leaves are one and a half inches by one inch, very finely toothed, dark green above and pale below, pointed at the tip and rounded at the base. Both surfaces are covered with a fine grayish felt which is thicker on the lower surface. Typical *Grewia bicolor* has wool on the lower surface only. The fruits are the size of a pea, and have a little flesh covering usually one big seed. No flowers were seen.

This is another of the plants with a distribution which begins in the Ghanzi area and extends northwards, and the remarks made as to the distribution and importance of *Grewia flavescens* apply here also.

[262] The fruits are edible.

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137X

Adansonia digitata L. Photograph 32.

Eastern !khũ Bushman ≠m

The Baobab, as it is commonly called, is shown in photograph 32. Its stem may have a circumference of up to 148 feet, and makes it quite unmistakable. In winter it is leafless but in summer it bears dense dark-green foliage. The flowers are pure white and up to six inches across, and the fruits, as described by Codd (1951: 120) are " oblong or egg-shaped, five to six inches or more in length and three to four inches in diameter, with a woody shell which is softly grey-velvety on the outside ".

The southernmost specimens were seen in the neighbourhood of Ghanzi, and from there it occurred sporadically to Gautscha Pan, the furthest point north reached by the expedition. There were big gaps in its distribution and it was rare throughout, but in some parts of the Transvaal it occurs abundantly and may have an unbroken distribution over many square miles of country. It is widely distributed in the drier regions of north and south tropical Africa.

252 262 [272]

Inside the shell of the fruit is a white, pith-like substance which may be eaten raw, or ground up and stirred into water to make a drink, or boiled to make a porridge. It has an acid-sweet taste. The seeds which are embedded in the flesh are also edible and are eaten like nuts. In other parts of Africa they are prepared in a somewhat involved way which includes protracted boiling, fermenting and drying. There are several records of the fact that the young leaves make quite a good substitute for spinach, but as the expedition was during the winter and as the trees are deciduous, I cannot say whether the Bushmen know of this, nor whether the trees we saw were of the glabrous variety which is the one used for spinach. No seedlings were seen. It is known that the white shoot from the germinating seed can be used as a substitute for asparagus, and that the tender root of the very young Baobab is also edible (Dalziel, 1937: 113). The trees are often hollow, and like *Boscia albitrunca* and *Ricinodendron rautenii* may act as reservoirs for rain water which can be used in times of scarcity. The Bushmen reach it by fitting hollow grass stalks end to end to form a tube, and sucking it out. A further product of the Baobab is a large caterpillar which feeds upon the leaves and which is an important article of food aming the Natives of the northern Transvaal. It is recorded also from South West Africa, and is very likely known to and used by the Bushmen.

271 312 824 262 136 825

137X

Ochna pulchra Hook. (5273) Photograph 33.

Eastern !khũ Bushman !i and !e:i

A semi-deciduous tree with a clean but usually rather twisted bole which is white to light gray and has a peeling bark. The branches are bent and rigid and the wood brittle. They bear glossy light green alternate leaves which are almost sessile and usually entire, rarely with a very finely toothed margin. The tree has an attractive appearance even in winter, and the young leaves add to this in the spring for they range from pale green to reddish-brown. The flowers are borne in early summer, in showy scented bunches. They have yellow petals and a green calyx, which persists after the petals have fallen and turns bright red. The fruits are hard and green when immature but turn fleshy and black as they ripen. There are usually two or three, the size and shape of small beans, attached to a fleshy red swelling in the centre of the flower. The leaves have been suspected of causing poisoning in stock, but tests carried out on mammals have so far been inconclusive. (Uys and Thomas 1952, Steyn, 1949: 125.)

X137 *Ochna pulchra* is well known and widely distributed from the Transvaal to Northern Rhodesia and Angola. It was frequently seen in southern Bechuanaland and again in the north, but there was a gap between of about 200 miles where it was not recorded. Ghanzi was approximately in the centre of this gap. In the parts traversed by the expedition it was seen growing only on deep sand or in rocky soil.

252 262 The Bushmen stated that the ripe fruits when boiled in water yield a fat, which can be skimmed from the surface and used as food. This is confirmed by the notes on the specimen collected by E. B. W. Schoenfelder (number 28):—

> "Fruit when still green eaten after roasting in ash (Kung). When black and ripe cooked with water and the fat skimmed and preserved. The cooked fruit is eaten with pips (Kung and Diriko)."

X137 *Combretum apiculatum* Sond. Photograph 34.

Eastern !khū Bushman ǁaja

A small tree or many-stemmed shrub, usually about 10 feet high in the drier areas. It has paired rather stiff pale green glabrous leaves with a varnished appearance, which turn yellow in the autumn and persist on the tree well into the winter before being shed. The flowers are small and greenish-yellow and would be insignificant except that they are numerous and massed at the ends of the twigs. The fruits have four papery wings and are about an inch in diameter.

Combretum apiculatum is widespread and often common, extending from Northern and Southern Rhodesia through the Bechuanaland Protectorate to South West Africa and through the northern Transvaal to Natal, but it was not seen along the route of the expedition until the Gautscha Pan area was reached, where it occurred sparingly.

[262] The Bushmen stated that it produces an edible gum. I have been able to confirm this in the Transvaal, but observed that the gum is produced only rarely.

Combretum coriaceum Schinz (5052, 5270, 5330).

Eastern !khū Bushman ≠gwa

An evergreen tree with paired stiff gray-green leaves. It is usually rather erect and in these parts seldom more than about 10 feet high, though it grows up to 30 feet under moister conditions in the northern Transvaal. The flowers appear towards the beginning of September. They are yellowish in colour and small, but crowded into showy little masses towards the tips of the twigs. The four-winged fruits are reddish-brown, and dry and papery.

It has been recorded from tropical Africa southwards to the Transvaal and Natal, but under a variety of names. Along the route from Molepolole to the north it was first seen 67 miles before Ghanzi. From there to Gautscha Pan it was fairly common except in the neighbourhood of Lake Ngami and the Okavango swamps.

[262] Although the tree produces an edible gum, it does so too rarely to be of importance as a food supply.

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By the spring there may be nothing left to mark the position of the plant. How extraordinarily observant the Bushmen are was well shown when they were asked if they could find a specimen and demonstrate its use. One man guided the party for four miles across country featureless except for clumps of trees to a spot where he knew of one growing. It was found after a short search—nothing more than two or three small sticks among the grasses, with the bark shredding into white silky fibres.

Raphionacme burkei is found from South West Africa through the Bechuanaland Protectorate into the northern Transvaal and the northern Cape. Two specimens were seen in the central Kalahari, and the species was determined from one of them which was sent to Pretoria for cultivation and flowered there in the following summer.

It is a well-known source of water among the Bushmen of the Kalahari. They extract the water from the storage organ by planing a pile of shavings off it with the edge of a split stick, and then squeezing the shavings in the hand and allowing the water to run into the mouth. This rather roundabout way of doing things appears to be without good reason, because the flesh of the storage organ may be chewed without any ill effect. It is firm and crisp, slightly fibrous, and faintly bitter.

Pentarrhinum insipidum E. Mey. (5171, 5191) Photograph 40.

Eastern !khū Bushman n!ɔ-ʃu and n!wa-ʃu

A leafy deciduous climber up to 10 feet high, and a vigorous grower which may completely cover the host tree. It has freely branching lax stems which are quite tough in spite of being only a matter of an eighth of an inch in thickness. They are covered with a fine white down which is just perceptible to the naked eye, and when broken they exude a little milky juice, so little that it is easily overlooked. At intervals of about five inches arise pairs of leaves, deeply cordate at the base, and with long stalks. In the younger stages they are minutely hairy but they become glabrous or nearly so as they grow older. The flowers rise in a group on a three-inch slender stalk from between the leaves. They are brownish with a yellow or white central portion, small and faintly scented. The fruits are occasionally produced in pairs but are more usually solitary. They are beaked, three inches long and half as wide, covered with blunt prickles, longitudinally wrinkled and dull green.

At Nama Pan this was a frequent climber among the trees, and it is widespread over southern Africa. It was not, however, seen in the country south of Ghanzi.

At maturity the fruits are hard and woody and packed with the fine silky hairs that form the pappus of the seeds, but when green they are softer and may be eaten raw or cooked as a vegetable, and may be stored for three weeks before they deteriorate. Their rather copious white latex is quite harmless. They have a crisp texture when raw and a pleasant flavour, nutty and faintly peppery. When boiled they are reminiscent of Asparagus. When the seeds inside have turned brown the fruit will be found too hard to make good eating. The leaves, too, may be eaten raw as a salad, and are used that way by some Transvaal Natives, but the Bushmen method of preparation is to pound them to a pulp in a wooden mortar.

Pentarrhinum insipidum grows well from seed and is a rapid producer of green material. It might be a useful fodder plant for domestic stock.

X137 *Sarcostemma viminale* R. Br. (4993, 5170) Photograph 41.

Eastern !khū Bushman |gubu|gubu

A leafless climber, reaching a height of 10 feet or so, with gray-green jointed branching stems as thick as a pencil and containing a large quantity of pure white latex. They bear yellowish strongly scented flowers, and fruits shaped like a slender carrot. The plant is occasionally found growing in the open, away from any support, in the form of a dense clump of ascending stems about three feet high.

It is widespread in South West Africa and the Bechuanaland Protectorate, and through the drier parts of all four provinces of the Union.

262 There are records from the Cape Province, Natal and the Transvaal that the stems and fruits of this plant are eaten by the Natives, either cooked as a vegetable or raw as a salad, and I have eaten the raw stems in the Cape Province. They have no distinctive flavour. It is a dangerous plant to eat, for there is a poisonous strain of it which is not visibly distinguishable from the edible one (Dyer, 1937: 123), and which, if eaten in sufficient quantity, causes death after symptoms like those produced by strychnine. The Bushmen said that they never used it for food. I have no information as to its use or otherwise in the central Kalahari, where it also occurs. Presumably it would be safe for food where browsed by animals, which often happens and is easily seen.

X137 *Ceropegia tentaculata* N.E. Br. (5220) Photograph 42.

!h3: Bushman..... ǂala
Naron Bushman..... !?aru
Eastern !khū Bushman !ama

A twiner up to eight feet high, minutely hairy, with opposite almost fleshy leaves about an inch long rising at intervals of two to three inches. The flowers which are produced on short stalks in a group of half a dozen or so are three quarters of an inch long and tubular, with a swollen base and lobes at the top produced into slender threads. The fruits are paired, four inches long, very slender, gray and filled with seeds attached to a silky pappus. The plant has a tuber a few inches below the surface of the soil, the size of a flattened apple, with a distinct hollow at the top from which the stem rises and with a rounded base which produces many short and slender roots. It is the colour of a new potato.

Ceropegia tentaculata has seldom been collected, and is recorded only from South West Africa. One specimen was found growing in deep sand in the shelter of a thicket about twenty miles south-west of Nama Pan. As it was recognised and named by one of the !h3: Bushmen who was with the expedition in South West Africa, it probably occurs also in the Bechuanaland Protectorate in the southern Kalahari, which is the home of these people.

[252 262] The tuber is edible when roasted.

Ceropegia sp. near *Ceropegia leucotaenia* K. Schum. (5309) Photograph 43

Eastern !khū Bushman |gwi-ts'ou

The above-ground parts are pubescent, otherwise similar to those of *Ceropegia tentaculata*. The flowers also arise in groups but have a shorter tube, about half an inch long, with the processes of the lobes connected at the tips. The processes are dark brown and covered with slender hairs.

The plant has a shallow tuber which is about as big as a billiard ball but bell-shaped, with fine roots sprouting from the flattened base. It is similar in colour to the tuber of *Ceropegia tentaculata*.

Only one specimen was collected, in the shelter of bushes on sandy loam near Nama Pan. It was cultivated in Pretoria and flowered in January, 1956.

The tuber is edible when roasted.

Ceropegia sp. near *Ceropegia lugardae* N.E. Br. (5264) Photograph 44.

Eastern !khũ Bushman n!wi:

In the above-ground parts the plant is like No. 5226 (*Ceropegia* sp. near *Ceropegia mozambicensis*), but it is more leafy and the flowers have a single instead of double swelling at the base. It has a similar bunch of pencil-shaped roots.

One specimen was collected in shallow sand overlying rock at Nama Pan. It flowered in cultivation at Pretoria at the end of March, 1956.

The roots are edible when roasted and in texture and flavour like those of No. 5226.

Ceropegia sp. near *Ceropegia mozambicensis* Schltr. (5226) Photograph 45.

!h5: Bushman..... ˌgu:-n‖a
Naron Bushman..... ˌgu:-n‖a
Eastern !khũ Bushman -n‖ama

A twiner with very sparsely hairy stems and leaves similar to those of *Ceropegia tentaculata*. The differences are that the flowers are borne in pairs on a peduncle about one inch long, one flower maturing long before the other, and that the flowers have a double swelling at the base and at the top are broadly funnel-shaped, with erect folded dark brown broad lobes connected at the tips and edged with sparse hairs. The tube is greenish, spotted with purple. The stem arises from a bunch of pale fleshy roots about six inches below the surface of the soil, the size of pencils but tapering at the ends and constricted at the top so that they are easily broken off.

Only one specimen was seen. It was growing in the shelter of a thicket on deep sand about 20 miles south-west of Nama Pan. It flowered in cultivation in Pretoria in January 1956.

The roots are edible when roasted. They taste somewhat like a potato, but are firmer and have a flavour of their own. They have no fibre and the plant would be worth investigating for improvement and cultivation as a vegetable.

Duvalia polita N.E. Br. (5187) Photograph 46.

Eastern !khũ Bushman -da:daba

A sprawling succulent plant. The fleshy stems are glabrous, uniformly gray-green and four inches high, with usually six longitudinal rows of soft spines with a deep crease between each row. They rise from underground runners which are white and lack the distinct spininess of the stems. The corolla-lobes surround a prominent fleshy basal ring, and are dark brown, sometimes with vibratile hairs similar to those of *Caralluma knobelii* and sometimes irregularly flecked with yellowish-green. The

Y137 specific name, which means *polished*, refers to the shiny appearance of the corolla-lobes towards the base. The fruits, borne in pairs, are between a half and a quarter of an inch in thickness and six inches long, tapering at the end and containing numerous flattened seeds with a silky pappus.

Although it has a wide range across tropical and sub-tropical Africa, it is uncommon; and only one specimen was collected on the expedition, under the shelter of scrub at the edge of a rocky outcrop at Nama Pan.

[252 262 312] The stems are edible raw or roasted, but have a bitter taste. They are sappy enough to be a useful source of water.

Caralluma knobelii (Phill.) Phill. (5094, 4914) Photograph 47.

!h5: Bushman..... -≠aberr
‖ganakwe Bushman... -da:daba
‖gikwe Bushman..... -da:daba
Naron Bushman..... -da:daba
Eastern !khū Bushman -da:daba

The plant consists of a number of stubby, succulent erect stems four inches in height and half an inch in diameter. They are glabrous and dull bluish-green, mottled faintly with a darker green and square in section, with four rows of sharp and fairly hard-tipped spines. They exude a clear greenish juice when cut. The flowers are white to greenish, with dark purple blotches and edged with sparse delicate knobbed hairs known as vibratile hairs because of the way they are moved about by even the gentlest breeze. The stems arise from underground runners which have the same form as the erect stems except that they are white, and more slender.

This species, which is known only from the Kalahari, was found in various places on deep sand between Molepolole and Ghanzi, but was nowhere common. It was in the shelter of trees and scrub, and was not seen in the open.

[253 262] The whole plant is edible raw or roasted, but the underground portions are better than those above ground, which tend to become bitter. [312] They have a peculiar smoky flavour which is not unpleasant, and their abundant juice makes them a useful source of water.

Stapelia kwebensis N. E. Br. (5140) Photograph 48.

Eastern !khū Bushman -da:daba

Similar in habit to *Caralluma knobelii*, but with dull green downy stems and rounded instead of sharp corners. The spines too are shorter and tipped with small erect leaves. It has dark brown flowers with slender lobes ridged on the upper surface and radiating out from a shallow central pit.

Only one specimen was collected on the expedition, on a rocky outcrop at Gam, but the species is widely distributed in South West Africa except in the extreme south and it is known from the northern Transvaal as well.

[252 262] The stems are edible, raw or roasted.

Fockea sp. (5136, 5236).

Eastern !khū Bushman '!xwa:

One of the two specimens collected was in the open among rubble at the edge of a sheet of rock at Gam, a plant with fleshy stems 12 inches high, and the only one of its kind seen in that vicinity. The other specimen was growing with several more in stony scrub-covered ground near Gautscha Pan, and appeared similar except that the stems were thicker and were twining to a height of several feet among the other bushes. The

X137 older stems often form the points of characteristic zig-zags. The fruits are red when ripe and contain about five seeds. They open by means of a latitudinal break (circumscissile dehiscence) so that the skin at the end of the fruit comes off like a cap. The central jelly-like portion of the fruit, which has the seeds embedded in it, often remains behind when the cap is removed. The plant is deciduous, and the vine dies back if the winter is severe. It arises from a pale brown rootstock the size and shape of a large pear, which in the three specimens collected was partly above the level of the ground.

Its range is from the northern Cape Province, the Transvaal and Zululand through to Rhodesia and South West Africa. It was collected south of Ghanzi and again in the neighbourhood of Gautscha Pan, but was nowhere common. It is a woodland plant and does not occur in the grasslands.

[262 252] The fruits are sweetish and edible when ripe. The rootstock is bitter and is not eaten, but the stems and leaves are boiled to produce a spinach which is fairly palatable, but stringy. It is eaten also by certain Natives in the northern Transvaal.

Corallocarpus welwitschii (Naud.) Hook. f. (5315) Photograph 54.

Eastern !khû Bushman !gwara!ai

The fruits of this plant have a short but fairly distinct stalk, and its rootstock has a faint unpleasant smell when freshly dug. In all other respects it appears to be identical with *Corallocarpus sphaerocarpus*.

It has been recorded from the Bechuanaland Protectorate and South West Africa, but so far not from the Union. The only specimen found on the expedition was growing in sand under trees at Nama Pan. It grew well in cultivation at Pretoria.

[262 252] There is no information on the edibility or otherwise of the vine, but the ripe fruits may be eaten raw. They are sickly sweet and flavourless. The Bushmen stated that the rootstock is edible after being cooked, but I found it too bitter to eat.

Momordica balsamina L. (4929, 4970, 5003) Photograph 55.

A climber over grass and low bushes or a runner over the ground, with sharply-lobed light green leaves about two inches across arising singly at intervals of a few inches along the numerous lax, slender stems. It has three-inch spiralling tendrils rising at the bases of the leaves. It is glabrous, with a soft, attractive look, but has a strongly unpleasant smell when bruised. The flowers are an inch across, pale yellow and after the usual Cucurbitaceous pattern as shown in the photograph of *Coccinia rehmannii*. The fruits, green when immature, are an attractive orange when ripe, one and a half inches long and an inch in diameter, with about ten longitudinal rows of short blunt prickles, and contain half a dozen seeds enveloped in a crimson pulp. The skin of the ripe fruit splits longitudinally and almost explosively when it is handled. The plant is an annual according to the *Flora Capensis*, but those in the Kalahari remained alive through the winter and put out fresh vines in the early spring to replace the frosted growth of the previous season.

It has been recorded from the four provinces of the Union and from Portuguese East Africa, the Bechuanaland Protectorate and South West Africa, and although it was not noticed north of Ghanzi, it was widespread to the south.

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The fruit, according to the label on one of the herbarium specimens, is " very poisonous ", but there appears to be no satisfactory proof of this. The Bechuana state that the crimson pulp round the seeds is edible, and I ate it without any harmful effects. It is sweetish but has a rather unpleasant slimy texture.

Citrullus naudinianus (Sond.) Hook. f. (4983, 4984, 5272) Photograph 56.

!h5: Bushman.....	ǁgan
ǁganakwe Bushman...	gã:
ǀgikwe Bushman.....	gã:
Naron Bushman.....	gã:
Eastern !khũ Bushman	ʧa

This viné, commonly known as the Gemsbok komkommer, is a runner on the sand and not a climber. It has a tap-root the shape of a large carrot, which may be three inches or more in diameter at the top and three feet long, and which grows hard and woody with age. The younger roots are full of juice and intensely bitter, and cannot be eaten by human beings, although many showed signs of having been eaten by animals. The runners, which may reach a length of 30 feet, are stouter than those of the related *Cucumis hookeri* and No. 4895 (see page 50), and unlike them and those of *Citrullus vulgaris* are fairly frost-resistant. Many were still green during the heavy frosts experienced on the expedition, and were even putting out fresh leaves. They often have a zig-zag growth form and may root at the nodes. Apparently they die back after a few seasons, for live and dead runners were common. The leaves, borne on a one-inch or two-inch stalk, are dull green, lobed, very rough to the touch, and between two and four inches long. A stout slightly hooked tendril rises at the base of each leaf and is usually about as long as the leaf-stalk. The fruits vary in shape from ovoid to nearly spherical, and weigh about half a pound. The skin is covered with thick soft spines a quarter to half an inch long, and is pale yellow when the fruits are ripe. They can stand heavy frost without spoiling, and are eaten by many different animals.

The plant has been recorded from the sandy parts of the north-western Cape Province and Orange Free State, the Transvaal, the Bechuanaland Protectorate, South West Africa, Angola and Northern and Southern Rhodesia. On the expedition the runners were common between Molepolole and Ghanzi but the fruits, in tens or in hundreds, were in patches sometimes many miles apart. The plants were not found on the firmer " pan " soils and were much less common north of Ghanzi.

The fruits have a thin rind containing numerous flattened white seeds embedded in a green translucent jelly-like flesh which may be eaten raw or roasted and has a distinctive, slightly rank flavour. The pips and skin are often roasted separately and pounded to make en edible meal. As a source of water this plant comes next in importance to *Citrullus vulgaris*, but like *Citrullus vulgaris* (and *Cucumis hookeri*) it cannot be depended upon where there have not previously been adequate rains, for the water in its perennial tap-root is not in itself enough to produce a crop of fruit.

Citrullus naudinianus has possibilities as a cultivated plant.

X137 *Citrullus vulgaris* Schrad. (4937, 4999) Photograph 57.

!h5: Bushman.....	dam
!ganakwe Bushman...	n!an
ǂkwe Bushman.....	n!an
Naron Bushman.....	n!a-ǂ
Eastern ǂkhû Bushman	_ǂ'a_ma

This plant, one of the melons and commonly known as the tsama, has stout six-foot vines half an inch in diameter at the base and a quarter of an inch at the tip. They are covered rather densely with light brown hairs, which turn white and stiff with age. The vines are usually prostrate, but occasionally festoon themselves over grasses and low shrubs with the help of small Y-shaped tendrils, curly at the tips. The leaves are borne on two-inch stalks and are hairy on the ribs, dull green, rough to the touch and deeply lobed. Each plant produces male and female flowers. They are an inch in diameter and pale yellow, and the fruits which follow are rounded and up to six inches in diameter and six and a half pounds in weight. As many as 34, of all sizes, have been counted on one plant. The rind, densely hairy when young but later quite smooth, is dark green mottled longitudinally with light green, and contains a crisp, juicy, tasteless white flesh in which numerous flattened brown seeds are embedded. The melons can endure heavy frosts without becoming spoilt, but the rest of the plant is very susceptible. The frosts, however, merely hastens its death for it is in any case an annual.

This melon is indigenous to south-west Asia and the warm dry regions throughout Africa. The water-melon is merely an improved variety of the same species, which has been known in Egypt and Babylonia since the beginning of history (Marloth, 1913-1925: III: II: 205). The tsama was widespread but patchy along the route of the expedition, and areas of abundant melon alternated with long stretches where it was not seen. It was not confined to the sand but grew also on the hard soil of the pans.

262 312 824 [184] [244] The tsama is unquestionably the most important plant to the Bushmen in this part of the Kalahari. They are known to use it as their sole source of water for months on end and it is extremely doubtful whether they would be able to live permanently in the Kalahari without it. Its importance is shown by the fact that one group of Bushmen in the central Kalahari had a small patch of tsama which they had grown from seed, and the Bushmen are not as a rule agriculturalists. Nevertheless, the tsama is not an infallible standby, for the reasons given in the discussion on *Citrullus naudinianus*, and when the need arises the Bushmen can and must substitute more meagre but at the same time more reliable sources of water, for example from *Sansevieria scabrifolia*. When it is used for drinking-water the melon is opened at the top like an egg and the central portion cut out and eaten. The rest of the pulp is then mashed inside the rind with a stick to a watery mass which is half drunk and half eaten, the pips being put aside and later roasted and pounded (without being peeled) to make an edible meal. The melons are sometimes roasted before being eaten, which adds a little flavour, and they may be cut up and mixed with meat to form a stew, which is conveniently cooked in the rind itself. Although no bitter specimens of the tsama were found along the route of the expedition, they do occur. Their flesh is poisonous and unfit for human consumption, but their seeds are free of poison and edible after roasting.

252 262 312

At some villages of Bakalahari (which are a Bantu tribe), the tsama is regularly cultivated. These and wild melons are collected and stored under shelter, and goats, horses, cattle and even dogs are kept with tsama as the main source of water. The livestock use the melon more economi-

The storage organs[1] are firm but juicy and may be eaten raw or cooked. The flavour is pleasant, rather like that of a turnip, and if they are eaten raw they are a valuable source of water. They were an important article of food to the Bushmen we met in the central Kalahari, and the plant would be worth investigating with a view to cultivation after improvement through breeding. 262 [252 312]

Coccinia rehmannii Cogn. (4954, 5029). Photograph 61. 137A

!h3: Bushman.....	m@waj!:
!ganakwe Bushman...	|ga:
!gikwe Bushman.....	|ga:
Naron Bushman.....	|ga:
Eastern !khû Bushman	|ga:

A vine, climbing by means of tendrils to a height of six or eight feet, and bearing on half-inch petioles a dense growth of dark green leaves which are deeply and irregularly lobed and very variable in size and shape. They have a rough texture from minute scattered white hairs, more numerous on the upper surface and pointing forward. The stems are slender and angled, and bear a few of these hairs also. The plants are either male or female, and both male and female flowers are trumpet-shaped with short triangular petals, pale yellow and three quarters of an inch across. The fruits are three quarters of an inch long, with a bulbous base and a rather thick neck, green mottled with white when immature and red when they ripen in the autumn. The old stems die back during the winter and new ones are produced the following spring from a perennial tuber buried about four inches below the surface of the ground. The tuber tapers gradually when young, but thickens and assumes various shapes as it grows older, and the bark, from being smooth, becomes rough and fissured. It does not "bleed" if injured superficially, but from deep injuries it exudes a clear astringent mucilage.

Specimens on the expedition were found not in the open grasslands, but always growing in shelter under a bush or in a thicket. It was midwinter and they were dormant, represented above ground by a few fragments of dry and leafless stringy stem among the twigs of the sheltering tree, and in consequence exceedingly difficult to find. Even after the presence of the plant had been established the finding of the tuber presented difficulties, for the connection with the vine overhead was often broken. The plant appeared to be occasional but widespread in the parts through which we travelled, and three tubers, all of which were successfully cultivated in Pretoria, were collected in different parts of the Kalahari. It is recorded also from the Cape Province, the Transvaal and South West Africa.

Besides providing food, the tubers are sappy enough to be a useful source of water, but they must be roasted first for they cannot be eaten raw. Older woodier tubers are best boiled, but even so the fibre is so tough that it is ejected after being chewed. At all stages the tubers are rather tasteless. They are known also to the Natives in some parts of the Transvaal, and eaten by them, but in this land of relative plenty they are not a popular food. The fruits also are edible, but rather sickly sweet and flavourless. Doubtless they are used by the Bushmen, but I failed to ask them. 252 262 312

[1] [CUCUMIS; see CATEGORY 116, p.50 FOR DESCRIPTION --ANALYST]

X137 *Coccinia sessilifolia* (Sond.) Cogn. (5167) Photograph 62.

Eastern ǂkhû Bushman ⁻k'!:dwa

A vine with many slender stems and bluish-green sessile leaves, deeply and irregularly lobed but usually less so than those of *Coccinia rehmannii*. The are covered with tiny raised scales on the upper surface, which sometimes show through on the lower surface as dots, and although hairs are present they are nearly all confined to the margins and too small to be seen by the naked eye. The tendrils are produced at the base of the leaves. Male and female flowers are borne on different plants. They are superficially alike, and similar to those of *Coccinia rehmannii*. The fruits are ovoid, three inches long and one in diameter, and are bright red when ripe. The leaves drop during the winter, and the vines also wither and disintegrate, but fresh ones arise in the spring from a perennial tuber weighing up to 25 pounds or so and similar in all respects to the tuber of *Coccinia rehmannii*.

Although the plant has a wide distribution on a variety of soils in the Cape Province, the Orange Free State, the Transvaal, the Bechuanaland Protectorate and South West Africa, it was not seen on the expedition until Nama Pan was reached, where it was growing under the shelter of trees in sand. Two tubers, which happened to be male and female respectively, were sent to Pretoria, and flowers and fruits were produced in the summer of 1955-56.

262 252 Both tuber and fruit are edible. The tuber, which is prepared by roasting or boiling, is fibrous and rather tasteless. The fruits may be eaten raw when ripe, and although sweet are without much flavour. They are best used for food when gathered green and cooked as a vegetable. Their texture is then fairly firm and their flavour like that of Asparagus. [136] An added advantage of using them green is that one avoids the larva of a certain fly which, in Pretoria at any rate, often heavily infests the more mature fruit.

114 X137 It is of interest to note that although there is a record in the National Herbarium that birds eat the fruit and that the tubers are dug out and eaten by buck, there is no record of the fact that the plant is eaten by human beings. On the contrary, the information on one specimen is "Fruit is very poisonous to children" and on another "Toxic".

184 278 Kalahari only insect poison is used, and further north and north-west only plant poison.

224 [184] All tribes observe certain customary practices in connection with the hunting of animals with bow and arrow. These vary considerably among the different tribes. The following is an account of the practice as met with among the *Hei-||om*. After an animal has been shot it is followed by the hunter until it expires or until nightfall when he returns to the *||gãus* (camp). The following morning the whole community takes part in the search for the carcass, as the previous day's tracks had in all probability been effaced during the night by other animals. The searchers spread out on a wide front and keep a very sharp lookout for the presence of vultures. After the carcass has been found it is skinned by the men.

252 The belly is then opened and the entrails removed and cleaned. Bags are made from the stomach and into these the blood is collected. The animal is next cut up and, after this has been done, the liver is roasted and eaten by the men. The skin, if suitable for the purpose, is cut into [237] sandals, bowstrings, etc., on the spot. The meat is then removed to the *||gãus* by the men who may occasionally be assisted by the women. On arrival at the *||gãus* all the meat is laid on the ground under the *!hei̯s* either on sticks which were used in carrying it or on branches. The *gei̯-khoib* 224 (chief) now comes forward and if he finds that the *!hei̯-|ais* 622 (fire under the tree) has gone out he returns to his hut, brings 252 fire and wood and re-lights it. If he is absent when the meat is brought in he is immediately sent for, the meat in the meantime being hung on the *!hei̯s* (tree in centre of camp). After having kindled the fire the *gei̯-khoib* instructs one of the men—the one who has shot the animal is excluded from doing any work—to open the bones and collect the marrow. The blood and the marrow are placed on the fire in separate pots and at the same time some of the meat for the men is also cooked. As soon as the latter is ready for eating the *gei̯-khoib* removes a piece from the pot and "tastes" (tsũ-tsũ) it. This is done by holding it between the teeth and fingers and cutting off and eating a morsel or two. The meat is now safe for the members of his group to eat. The cooked meat is then pounded with a stone, teased between the fingers and thrown into the pot containing the blood. The melted marrow is next stirred into the mixture of blood and meat. The resulting dish is known as *≠koms*.

224 262 All meat killed with bow and arrow is *so.ra* and may not be partaken of until it has been tasted by the *gei̯-khoib*. The liver, however, is eaten by the men immediately after the animal has been cut up and is thus excluded from the scope of the *so.ra* as far as men are concerned, but to the women it is *so.ra*. All parts of the animal are eaten, but certain categories of people may eat only certain prescribed portions of the animal, the rest of the meat being *so.ra* to them. For example, the wife of the man who killed the animal is entitled to the superficial covering of meat and fat of the

hind quarters, the entrails and the trotters (*ǂei-ti*). Her portion is known as the *ǂnoe-di* and is the only meat which may be partaken of by women. The *ǂnoe-di* is shared by her with the other women, including the *ǂkham-khoidi* (adolescent girls) and with the young children. The *ǂnoe-di*, however, may not be eaten until the *gei-khoib* has tasted the meat. It is cut on the spot where the carcass was found by the person who shot the animal and handed over to the latter's wife after arrival at the *||gãus*. It is not brought under the *!heis*. It is cooked by the wife of the hunter on the fire in front of her hut after which the other women come and get their portions and eat it in their own huts. The *ǂkham-khoidi* obtain their meat from their respective mothers, as also do young children still living with their parents. If women partake of any other meat than the *ǂnoe-di*, the poison of the arrow will not act when an animal has been shot. The meat which may be eaten by the *axarogu* (youths) is known as *!om-||gani* and includes the flesh of the abdominal wall, kidneys, etc., and the genital organs such as udder, testicles, etc. It is prepared by the *axarogu* themselves over their own fire at the *axarogudi ǂgaos* (young men's hut). The person who shot the animal receives the ribs and shoulder blade of one side. He may prepare his portion either under the *!heis* or over his own fire. The ribs must be cooked and the shoulder blade roasted because they taste better when done in this manner. The rest of the meat is *sora* to him and if he eats any other part, *e.g.*, the *ǂkoms* he will not meet with success in hunting because the poison will weaken and refuse to act. The parts of the animal which go to the *gei-khoib* are known as the *so-eis* and include portions about two finger breadths in size from each quarter, from each side of the back and one rib from each side. These are strung on a thong or cord and hung up for his sole use. *So-eis* may, however, be shared by him with a visiting *gei-khoib*. The *gei-khois* receives her share from the *ǂnoe-di*. The *gei-khoib* may also partake of the meat for the remainder of the men called the *so-||gani*, under which is included the *ǂkoms*. The latter may be eaten only under the *!heis*. After it has been prepared each man brings his wooden bowl or other receptacle and helps himself. Any man whose wife is menstruating will, however, not partake of the *ǂkoms* as it contains blood. The rest of the meat is divided among the men by the *gei-khoib* and is prepared and eaten at their huts.

224 262 [784] [282] [784] [264] [84]

A similar procedure is adopted in connection with meat killed by the members of an outlying *||gãus*, the *gei-khoib* likewise having to taste it before it may be partaken of. He may either proceed to the *||gãus* concerned, or if the distance to be travelled is considerable, all the meat will be brought to his *||gãus*. In all such cases the *so-eis* is brought to him by the messenger sent to notify him of the kill. When he

224 622

224 622 visits a *//gũus* for this purpose he kindles the *!kei-/ais* with fire from one of the huts, and, after having tasted the meat, returns to his own.

224 777 Any want of success in the chase is generally attributed to some chance incident. For example, a man, who has had bad luck in hunting while his wife had her periods, will not hunt again when she is in that condition nor will she eat any of the *ǂnoe-di* at such times. The meat of an animal [262] killed by a dog may not be eaten by women or by any men whose wives are menstruating. This prohibition is to prevent bad luck befalling the dog in the pursuit of game. If, however, an animal is killed with bow and arrow after having been brought at bay by a dog, the meat is *soxu* and women may eat the *ǂnoe-di*. The remains of an animal killed by a lion are not *soxu* and may be partaken of by all individuals. Care, however, is taken not to offend the lion which likewise observes certain practices after each kill. After having had his fill he buries the sacrum and haunchbones and covers them over with the dung (stomach contents) of the animal. If he should be unsuccessful in hunting his prey he returns to the spot of the last kill, digs up the buried parts and inters them in another place. This he does to restore his luck and if he should find that the bones have been taken away he will follow the person who removed them right into the *//gũus*.

184 224 262 784 *Soxu* applies only to meat killed with bow and arrow and as far as is known at present this practice exists among the *Xom-khoin*, *!Koma-khoin* and *Gio-gana-khoin*. Among these groups the meat of the following animals is *soxu*, namely, steinbuck, duiker, springbuck, hartebeest, gemsbuck, kudu, wildebeest and giraffe. The eland, which is a comparatively rare visitor to the parts occupied by these groups is not killed at all by the *Xom-khoin* who believe that harm will befall any person who eats its meat. In other words the *Xom-khoin* consider the eland to be absolute *soxu*. Among other groups the man who shoots an eland must, on returning to the *//gũus*, sleep under the *!kei* as intercourse with his wife will prevent the poison from killing the animal. The same applies to a person who shoots a giraffe.

412 The implements and utensils which are used in the collection and preparation of food are very few in number. Vegetable food is dug up with a sharpened stick, 2 to 5 feet in length.

252 Ointjes, *//ũoun* and other similar plant foods are roasted in hot ashes covered with cinders. Ants (Bushman rice) are dealt with in a similar manner and then recovered again by means of a sieve of grass matting. Locusts are either roasted or boiled. Frogs, etc., are sometimes roasted over the fire on a wooden spit (braaistok) stuck into the ground. Birds, snakes, small antelope, etc., are prepared by placing them in a hollow made in the ashes with a flat paddle-shaped wooden scoop and covering them over with live coals. The meat of larger

animals is either cooked or roasted. Among the tame partly disorganised groups any sort of receptacle such as a paraffin tin serves for cooking purposes. The more primitive groups use clay pots bartered from the neighbouring Bantu. Roasted plant food is eaten whole or in the form of soup or porridge after being pounded up in a wooden mortar or on a stone and mixed with boiled blood. 252 [437]

Food is eaten direct from the pot or from bowls made of wood or the hide of big game. Many groups nowadays make wooden spoons. Generally, however, either the hands or tortoise-shell spoons are used in eating. 264 415

Every part of an animal is eaten or made use of for some purpose or another. Nothing is allowed to go to waste except by those groups which, through possessing dogs, find it comparatively easy to kill game. The camps of the latter are generally littered with bones, etc., whereas among the wild Bushmen even the bones are broken up and eaten. In the case of small antelope when for any reason the skin is not suitable for other purposes it is roasted with the animal and eaten. Small skins are used for karosses, food and tobacco pouches, quivers, loincloths, etc. From the skins of big game on the other hand sandals, blankets and, among certain groups, bows, quivers and bowstrings, are made. The */Nu-//ĕin* and *//Aikwe* are more expert in preparing skins than the *ǂAo-//ĕin* and other tribes living to the north. Articles made by the former form an important medium of exchange. The sinew is used for making bowstrings, for reinforcing bows and arrow-shafts, and as thread for sewing skins. From it also is made the string of the nets in which the Kalahari groups carry their belongings. In the Kalahari the foreshaft and tips of arrows are made from the long bones of the ostrich and various kinds of big game. Bones are also made into knives, awls, pipes, etc. The horns are manufactured into spoons, whistles, small quivers for carrying arrow-tips during the rainy season, implements for stripping the fibre required for snares, artificial leeches, etc. The stomach of large animals when not required for food is fashioned into bags for collecting the blood and for carrying water. Ostrich eggshells are used for carrying and storing water and for the manufacture of the eggshell beads which at the present time form the most important article of barter among the */Nu-//ĕin, Kaukau* Bushmen and *Hei-//om*. Among the most northerly groups on the other hand arrow poison and red ochre, obtained from the wood of the *omura* tree, are the principal media of exchange. 184 262 237 [184] [438] [482] [415] 301 438 184 278 438

Religion.

The purpose and scope of the present report do not permit me to deal at length with the multitudinous magico-religious beliefs and practices with which the lives of all these primitive communities are surrounded. 121

9: Thomas T-5 (1951-1955)1959
FX10 Bushmen FX10
Gikwe

asked Ukwane for some, which Ukwane gave him. Gishe said: "I have been living among Europeans for a long time, but I remember now who I am."

From the body of that gemsbok the Bushmen bailed out several bucketfuls of liquid, enough to supply them for almost a week. They cut the meat into strips which they would dry in the sun and use as they needed them, also enough for a week or perhaps even longer, as there were only a few people and the gemsbok was almost as big as a cow.

Tsetchwe had built a tiny fire beneath a tsama melon, an empty melon with the top cut away, and when she received her share of the meat—for any animal is divided at once by a rigid system of rules, some meat given to each person rather than kept as a communal supply or portioned to families—she cut a small piece and stuffed it into the melon, where melon juice, heated through the rind, was boiling now. It cooked like meat in a stew, and when it was done Tsetchwe emptied the melon into a bowl, fanned it to cool it, and then ate some, putting a strip of meat into her mouth and hacking off a bite with her husband's knife. She was ravenously hungry and she ate almost all, while her baby, lying in her lap, nursed from her breast. The last piece she saved for him; she put one end of it into his mouth and, as he bit down, flashed the great knife under his nose to cut him a small enough morsel.

The gemsbok had vanished. All that remained from the butchering was the pile of squeezed, dry grass from the rumen and a few lumps of feces that the redheaded flies buzzed over. The meat, bones, head, hide, and brushlike tail all now belonged to people, and all the people had carried their portions away. Gai owned two hind legs and a front leg, Tsetchwe had meat from the back, Ukwane had the other front

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GiKwe

the innocent eyes of a baby and pretty, drop-shaped ears that were pink inside, it rushed at him and bit his finger. A dire fate awaited it; Ukwane caught it and pinched its throat.

The tortoise was given to Nhwakwe, the baby, as the spoils of a hunt are always shared, and Gai, his father, took it to roast it for him.

First, Gai scooped a shallow pit in the sand in front of his sleeping-place, which he filled with burning sticks. Beside him, old Twikwe held the tortoise on its back, but the tortoise urinated brown urine and Twikwe let it stand up. It stood looking at the flames, blinking its hard black eyes, then started to walk away. But Twikwe caught it again and held it, idly turning it over and over while she talked with Gai about other things, about smoke they had noticed on the southern horizon which Gai said was Bushmen's smoke. Gai said he planned to go to see the people some day soon, and as he spoke he took the tortoise from Twikwe and laid it on its back, where it rested with its feet out and its neck bent, in the position that would be correct, if it were standing. Gai took a burning stick from the fire and set it against the tortoise's belly. The tortoise kicked violently and jerked its head, urinating profuse amounts of the brown urine which ran over Gai's hand, but the heat had its effect, the two hard, central plates on the shell of the belly peeled back, and Gai thrust his hand inside. The smoldering shell reeked and the tortoise struggled violently, but Gai slit the belly with his knife and pulled out the intestine.

The tortoise by now had retreated part way into its shell, trying to hide there, gazing out from between its front knees. Gai reached the heart, which was still beating, and flipped it onto the ground, where it jerked violently for a moment, almost jumping, then relaxed to a more spasmodic beating, all by itself and dusty, now ignored. Gai pinched the gall away

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FX10 Bushmen FX10
GiKwe

252 from the yellow liver and threw that away, but he left the liver and the surrounding fat because he meant for that to be eaten.

The baby, Nhwakwe, who owned the tortoise, came to sit by his father, leaning on Gai's leg and watching, looking smiling into the belly of the tortoise. A tortoise is such a slow tough creature that its body can function although its heart is gone. Nhwakwe put his wrists to his forehead to [524] imitate in a most charming manner the way in which the tortoise was trying to hide. Nhwake looked just like the tortoise.

Gai frowned with concentration and worked with his mouth open, pulled down at the corners. When the intestines were removed, Gai stuffed the cavity with green leaves of the [263] kind that "make your gums numb," say the Bushmen, added for flavor, I believe. The tortoise at this retreated far into its shell with its legs pulled in tightly, and Gai heated the doors again to curl them down. Then he packed the opening with grass and the tortoise's dung, capped it with a tsama-melon cap, and put the tortoise into the oven that was prepared for it like a shallow little grave which the tortoise just fitted, a final agony, for the tortoise once more kicked and struggled as Gai raked hot coals over it. The steam escaping from the moist flesh caused the ashes to bubble and boil, and it was over; the meat was in the pot.

Gai flung the intestines away and sat down near his wife to smoke, and I, who wished that they could at least have killed [539 776] the tortoise first, thought of the story of Pishiboro and one of his wives, an elephant. Pishiboro is one of the names of God.

One night, when Pishiboro and his younger brother were sleeping, the elephant wife took them both and rolled them between her thighs, which caused them great discomfort. The younger brother said to Pishiboro: "Let us go away now

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FX10 Bushmen FX10
GiKwe

152 The Bushmen as well as the gods ignore the suffering of animals. When they opened the pit and took out the tortoise
264 several hours later it did look delicious, and the meat, which came easily off the small, thick bones, smelled delicious brewed in the green leaves, and the thin young boys smiled happily and brought their tsama rinds to be filled from the mortar where Gai put the pieces he had picked off and had pounded to make them even and small.

262 While there was gemsbok meat and tortoise meat, the rabbit was hot worth eating, and it hung from the tree, where it dried, like a little husk, to be moistened again and eaten when nothing else was left. It swung in the breeze like a leaf, like a tiny, eerie ornament.

252 The lizard was eaten that evening by the three young boys,
264 who built a fire of their own, where they sat like hunters back from a hunt; with the red light of the fire on their thin faces, making their eyes bright, they roasted the lizard in the coals and ate it, and pulled its tiny bones out of their teeth.

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GiKwe

222 The women stopped and began to gather up the green melons, Twikwe picking them with a mechanical, stereotyped gesture. She first slipped her hand under a melon; then, twisting her elbow, she lifted the melon and held it pinched between the heel of her hand and her forearm, and with a scoop slipped it into the pocket of her kaross on the side. In a moment the side of her kaross was full, and she stood erect for an instant, looked at the sky, shifted her weight, and suddenly the melons rolled to the back of her kaross, leaving the side free for more. She was very efficient. In a moment she had a load. I was a little surprised at her, however, for now she would have to carry the melons with her all day whereas she might have gathered them on the way home. But Bushman women do not seem to mind this.

The women left behind the yellow melons which would have been bitter and rotten, touching them disappointedly with their toes instead. The false spring was hastening the time when all the melons would be gone, forcing the Bushmen to eat roots as a staple diet, not as desirable because of the uses that tsama melons have. Melons are eaten as both food and water, their pulp is added to meat which needs liquid for boiling, their seeds are roasted and eaten or ground into powder and used as flour, their rinds serve as mixing-bowls, as containers for small, loose objects, as cooking-pots with or without the pulp inside, as urine-containers for curing hides, as targets for the children's shooting practice, as children's drums, as resonators for musical instruments, and all this amounts to a serious loss for Bushmen when the melons rot or dry.

222 824 [252] [415]

222 We went on until we were about two miles from camp. We were going to an almost imperceptible small hill, a place, said Twikwe, where a great deal of veld food grew. On the way a moving shadow caught our attention, and we looked up

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Kung

with their families on trips that would take them only hours if they were traveling alone. We stopped a fourth time in the middle of the vast plain, for John had seen a shattered ostrich egg on the ground and wanted to let the Bushmen gather it to make beads. Toma motioned him to drive on. The egg, he thought, belonged to a man named Crooked Kwi, who had left it there one season and would return for it someday soon. Toma had heard of this event from Crooked Kwi himself when they had seen each other last, and, observing that the shell fragments were gathered into a pile, he supposed that this must be the very egg that Crooked Kwi had mentioned. It was just where Crooked Kwi had said it would be, too.

We left the eggshells behind in the immense plain and went on our way toward the eastern rim. When we got there we found the rest of Gao Feet's family—his older and uglier first wife, his old mother-in-law, his first wife's daughter, and his daughter's husband, none other than Crooked Kwi himself. These people were living in a most beautiful glade of thorn bushes that were growing thickly together among tall trees, their branches arching just over people's heads. A fire had cleared out all the grass and leaves, leaving just the brown earth and the gray lace of branches; the people were brown and their things were brown and white and the ashes of their fires were gray in the little hollows on the ground, for these people, too, had built no scherms. Tu got right out of the jeep and went straight to a fire, where she began to crack some of her tsi nuts between a stick and a stone.

The rest of us exchanged greetings and the old woman, Dikai's mother, embraced me. "You are my daughter. I bore you," she said. When I had first come to Gautscha Pan I had been named Dikai for her daughter, and among the Kung one is strongly identified with the person one is named for; as the

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namesake of Dikai, I had acquired her set of relationships and was expected to follow the rules that applied to her. I could act in a familiar way with those people whom she treated familiarly and was expected to avoid those whom she avoided. I called Dikai "Big Name," the term usually applied in such a relationship, she called me "Little Name," her nephews called me "Aunt," her mother called me "Daughter," and often her husband, Gao Feet, with roars of laughter, would say he would marry me someday.

We sat down in the werf in the delicate shade of the arching branches and Dikai's mother produced a bag full of tsi nuts, which the people began to roast and eat. The bag was made of the entire skin of a duiker—a little nocturnal antelope no bigger than a small dog—turned inside out with the legs tied together as handles, the neck tied off as the bottom of the bag and the rump open as the top. When it was full of tsi it was solid and formed and looked eerily like a little, headless duiker.

When the day was over and the sky was getting dark I made a camp for myself a few feet from the werf. The Bushman children helped me pull the grass. We built a fire in our clearing and I cooked some beans and tsi nuts that Dikai's mother had given me for myself and the children, and as Bushmen from the werf began to come over I cooked more and more. There wasn't much—the Bushmen had only half a day's supply and we hadn't expected to be away from camp so long. Everyone had a little, though, and afterward we filled ourselves up with water and we smoked. It was very cold. Before the night was over, the water we had in our water pail had turned to ice. On nights such as this the Bushmen prefer to sit up and talk, to keep their minds off the fact that the air is cold and they are naked and hungry, rather than to try to sleep; they wait to sleep the following day, warm in the sun.

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Kung

gether without speaking and then his wife lay down and he lay down and their fire began to die. Soon all the werf was dark.

In the morning, in the salmon dawn, the first light, we woke up to find doves singing and a fresh, warm wind blowing. It was easy to sleep now, and the people slept for hours, rolling away from their piles of ashes as the day warmed, until they lay curled or sprawled in all parts of the werf with Toma's son, by chance, asleep in the center, flat on his belly with his head in the curve of his arm, relaxed and strong and breathing deeply.

At noon the adults began to get up. The women went into the forest behind their werf for sticks to burn and a few roots to eat, and when they had built up their fires they roasted the roots and shared them with their families. Toma said that we would go back to Nama Pan right away, but his wife and the other women wanted to gather tsi; it was very abundant right beside the forest and they hated to leave all that food just lying there. "Perhaps other people will come here and eat it," said Tu, so Toma changed his mind and everyone took bags, nets, skins, anything that could be used as a container, and they spent the afternoon gathering tsi. They got mountains of it. There was plenty in the patch that they had chosen and with all of them picking the nuts from among the round leaves of the tsi plants they filled every bag, skin, and net that they had. They gathered almost three hundred pounds. The women felt so happy that they were singing a gay, light song in three or four parts. When the people had picked all they could find, when every possible bag was full, they said they were ready to go to Nama, but when we brought the jeep and began to load it they were already busy with their endless preoccupation, that of giving and receiving, and had already

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Kung

by now, cranky from the long ride; the bundles of tsi were unloaded, the bundles of belongings, and Tu's grass bed. Lazy Kwi went off to find his wife and family, but the others, all Toma's people, looked around for a place to live and finally chose a tall tree, where they dropped their bundles and began to clear grass. In a very short time the werf was ready, fires were lit, tsi was roasting, and several of the Bushmen who had watched us come had gathered there to see if they should have a share of the tsi. Of course everybody got some and then sat down to eat it, burying the nuts in the hot ashes and scooping them out again with a stick when they were done. Dikai gave some tsi to me and said that I could use her fire, a courtesy, so I buried the nuts in the ashes and when I thought they were done I poked for them with a stick but I couldn't find them. Pretty soon they began to explode with loud reports and puffs of gray ashes which showed where they were, but of course then it was too late. You might as well throw them away if you forget where they are, the Bushmen say.

Some of the newcomers were eating giraffe hide, roasting great pieces of it, dried and thick and curling; they passed chunks of it around and it looked like the soles of shoes, all that remained of a giraffe hunted long ago. When it was roasted the people put it in a wooden mortar and pounded it into powder, and then licked the powder off their palms. Again, Dikai gave some to me and I found that it was salty and not unpleasant, tasting like bacon.

Gao Feet plucked my elbow and when I turned to him he pointed at Dikai, sitting on the other side of the fire. He had pointed his lips at her, pushing his lips forward and gesturing with his chin because Bushmen think it is rude to point with the finger. "She wants to tell you what is in her heart," he said. I looked at Dikai and she passed her hand over her two sons' eyes, first Little Gashe, then Little Dabe, as they slept

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Kung

lifted her head and her face showed in the firelight; her eyes shone quite yellow and she looked dangerous, like a leopard, as she glared in the direction of his voice.

On my way home I passed Lazy Kwi's house, which his wife had started in his absence, and as she had planned a large scherm and had already built the framework, many large branches stuck upright in the ground, but had not yet covered it with grass, I could see Lazy Kwi inside. He was between me and his fire, and in silhouette against the red light he looked like a creature in a cage, for he was peering through the lattice of branches to see who was passing by. I stopped to show who I was, and noticed a bird roasting by his fire, a little duck which must have been snared by Lazy Kwi's old father-in-law. It was plucked and trussed and tied to a stick which was pushed into the ground so that the duck hung over the coals. It looked about done to me, so I asked Lazy Kwi, who was obviously alone with it, awake only to tend it, if it wasn't ready, and Lazy Kwi looked first at me, then at the duck, then up at the sky, and shook his head. He was timing it by a star, he explained, and the star had risen but wasn't high enough yet, so I said good-night and went home and left him in his lattice; and just before I went to sleep I heard great shouts of laughter, for Toma had found someone who hadn't heard the lion story and was telling it again.

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IN ANNUAL CEREMONY, *above*, a girl is guided as she lifts a *tsi* nut from the fire. She is now free to eat *tsi* for a year.

[p. 58]

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might eat more in this way as he would not have to share that cooked meat with anyone but his wife and child.)

Gao Beard's sister, Di/ai, who had given him the arrow, received the meat of the back and throat and the intestines.

Gao Beard kept the meat of the neck for himself and in a second wave of distribution gave the rest of the meat as follows:

To his first wife, //Kushay, he gave both hindquarters, the meat of the chest, the lungs, part of the liver and one hind foot. To his mother he gave the meat of the belly and one hind foot. To his sister, //Kushay, and to /Gasa, the wife of his brother, /Qui, he gave one front foot each.

The amount given to his first wife was enormous. In addition to giving to her co-wife, also named //Kushay, and their children, she was to give a large portion of it to her parents, who lived with them in Band 2. (On other occasions the man had given directly to his wife's parents—not through his wife.) When the meat was cut up, //Kushay gave to her father, Old ≠Toma, four bundles of strips of clear raw meat (it was somewhat dried by then). There were about ten or twelve strips to a bundle, about 2½ to 3 feet long. We guessed the weight in all to be about 60 to 70 pounds. She gave meat also to her two younger brothers, /Gao and /Gunda. (Her other brother, //Ao, who had been one of the hunters, had got his share from Gao Beard.) She gave to her co-wife's father (≠Gao, Band 4) and to Old /Gaishay, her co-wife's MoFa, headman of Band 4. She then gave to six other persons, all in Band 1. They were her cousin, Old Gau (her FaSiSo) and his two daughters, and two other cousins (FaSiDas), Di/ai and /U, and /U's husband, ≠Toma.

The giving of raw meat went on. Old ≠Toma gave to eighteen people: his wife, six affines, three kin, two name relatives (i.e. a visitor because his father's name was ≠Toma, and Old /Gasa because her deceased husband's name was ≠Toma), and six other persons. Telling us the reasons for giving to the last six, whose kin or affinal connexions with ≠Toma, if any, were so remote we did not bother to trace them, he said of one, 'He is an old man whom I like in my heart', and of another, 'He was hungry for meat.' In the end Old ≠Toma gave some of the meat back to his daughter, //Kushay.

Di/ai (Band 3), the giver of the arrow, gave raw meat to six persons: her husband's mother, brother and two sisters (in Band 2), a visitor who was her HuSiHuBr, and her mother's brother, headman of the visiting Band 7.

Persons who had by this time received substantial amounts of raw meat began giving to others. We recorded 63 gifts of raw meat. Doubtless there were more. After the raw meat was given, there was further sharing of the individual's portions, cooked or raw, with parents, offspring, spouses, and other persons who live together.

Meat is not habitually cooked and eaten as a family meal among the /Kung. When an individual receives a portion of meat he owns it outright for himself. He may give and share it further as he wishes, but it never becomes family or group property. The men, women, and children may cook their pieces when and as they wish, often roasting bits in the coals and hot ashes and eating them alone at odd times. Or someone may start a big pot boiling and several people will bring their pieces to put into it at the same time, each taking his own piece out when it is cooked.

The sense of possessing one's own piece personally is, I believe, very important

The most highly valued gifts are the traditional ornaments of ostrich egg-shell beads, especially the wide headbands and necklaces of five or six strings of beads reaching to the umbilicus. The creamy white is becoming to them. They like European beads also, of all colours, though white is definitely their preference. The only thing they do not like about beads, Gao Beard told us, is shortness of the string. After ornaments, the /Kung value implements or utensils, *//gushi* or dance rattles, which have required time and care to make, but perhaps more especially valued are metal objects and pots. The latter are obtained by trade. The /Kung do not trade among themselves. They consider the procedure undignified and avoid it because it is too likely to stir up bad feelings. They trade with the Bantu, however, in the settlements along the B.P. border. The /Kung offer well-tanned antelope hides and ostrich egg shell beads. For these they obtain tobacco, beads, knives, axes, malleable metal for making arrow-points and spear-blades, and occasional files and chisels, fire-strikers, and pots.

The odds are with the Bantu in the trading. Big, aggressive, and determined to have what they want, they easily intimidate the Bushmen. Several /Kung informants said that they tried not to trade with Herero if it was possible to avoid it because, although the Tswana were hard bargainers, the Herero were worse. /Qui said he had been forced by a Herero whom he was afraid to anger to trade the shirt and pants we had given him as our parting gift in 1952 for a small enamel pan and a little cup. /Ti/kay had more gumption. A Herero at the beginning of a negotiation with him brought out a good-sized pile of tobacco but took from it only a pinch when it was time to pay. /Ti/kay picked up the object he was trading and ran off. ≠Toma said with amused exaggeration that 'a very good Herero, a respectable one, will give a handful of tobacco for five cured steinbok skins. A bad Herero will give a pipeful (he showed the size of his fingernail) for three skins.' The Tswana values are a little better. A well-tanned gemsbok hide brings a pile of tobacco about 14 inches in diameter and about 4 inches high. The values vary. Some that were reported to us were three rooibok, duiker, or steinbok skins for a good-sized knife, five strings of ostrich egg-shell beads for a spear.

The /Kung have become dependent on metal, especially knives, axes, and arrow-points. They have been able to trade enough for every man to have these implements. They could, however, exist without them and do still use a few bone and wood arrow-points. Poison makes their arrows deadly, not penetrating power. The pots are Ovambo or Okavango pottery (the /Kung make no pottery themselves) or European ironware. The /Kung like to have a pot around to borrow sometimes; not everyone wants to carry one. They cook mostly in hot ashes. More for their novelty, I thought, than for their worth, the /Kung trade also for old oddments of cloth garments (they weave neither cloth nor mats), pieces of blankets, basins, &c.—things they do not really need—but which they like.

Tobacco they need 'to make the heart feel better'. Oddly enough for these passionate smokers, tobacco was not given so much emphasis in gift-giving as one might expect. They do make gifts of tobacco, but when anyone lights a pipe he passes it around anyway; all present drag smoke into their lungs until they almost faint and it has not mattered much who owned the tobacco.

Eland fat is a very highly valued gift. An eland provides so much fat that people

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On the Move A Bushman hangs his possessions on a carrying stick and thrusts his assegai under the stick in back to distribute the weight onto both shoulders.

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462 When the people go to gather mangettis or tsī the men always accompany the women and help to gather and to carry the heavy loads—as much as they possibly can—back to the water hole.

Though the men help, especially with *tsī* and mangettis, gathering and digging are the work of women and the work that takes up the greater portion of their energy and time throughout their lives. Their digging implement is a sharpened, unweighted stick about three feet long. When we were living with the Gautscha bands at the Gautscha water hole in the dry season, the women went to gather every day or every second or third day, depending on the distance and on how much food they could carry back. They would plan which patch or fertile area to go to and start out in small groups, some to one place, some to another. They would walk five or ten or fifteen miles to their destination and then pick berries or dig roots, which may lie two feet or more under the ground, until the mid-afternoon, and then start back to the werf (campsite) at the water hole. They carry their infants tied to them, small children on their shoulders, and the loads of veldkos in the bulges of their karosses (skin capes). When they near the werf, they pick up two or three logs for the night fires.

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The veldkos that each woman gathers belongs to her and with it she feeds her own family, sharing with whatever relative or friend she wishes. Custom does not require her to share it in a systematic way with others as meat must be shared. She cooks her veldkos in the coals and hot ashes, pounds fibrous roots and hard berries in her mortar, and serves the food to her family as a family meal, usually in the evening. During the day, however, people may cook and eat little snacks at odd times.

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231 Although there are numerous kinds of veldkos, we must not give the impression that there is a great abundance. In fact, the opposite is true. Food is scarce all over the arid Kalahari, where drought is the scourge on all—the cattle raisers, the dry farmers, and the gatherers of the wild foods.

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582 There has been much intermarriage in the Nyae Nyae region. Families therefore may have close relatives—with whom they have the right to live—

15: Marshall E-5 (1951-1961) 1965
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224 602 they are present, and to other kin, affines, and friends who are there, possibly only in small quantities by then.

Everyone who receives meat gives again, in another wave of sharing, to his or her parents, parents-in-law, spouses, offspring, siblings, and others. [574] This meat may be cooked and the quantities small. Visitors receive small amounts of cooked meat from their hosts. It ends in everybody getting some meat.

224 431 In the later waves of sharing, when the primary distribution and primary kinship obligations have been fulfilled, the giving of meat from one's own portion has the quality of gift giving. !Kung society requires at this point only that a person should give with reasonable generosity in proportion to what he has received and not keep more than an equitable amount for himself, and that the person who receives a gift of meat must give a reciprocal gift of meat at some time in the future. People give to whom they please, this time to some, next time to others, more generously or less generously [571] according to their own (to us often unfathomable) reasons. We are certain, however, that the motives are the same as in gift giving in general: the person gives to measure up to what is expected of him, to make friendly gestures, to win favor, to repay past favors and obligations, and to enmesh others in future obligation.

224 431 181 [154] [183] Aside from the practical advantage of using up meat while it is still fresh, the !Kung custom of meat sharing has enormous social value. It does a great deal to mitigate tensions. The fear of hunger is lessened. People are sustained by a web of mutual obligation. Moreover, they are fully conscious of these values, and the custom is so strongly established and so faithfully followed that the idea of not sharing is virtually unthinkable to the !Kung.

422 262 264 Meat is not habitually cooked and eaten as a family meal among the !Kung. When an individual receives a portion he owns it outright. He may give and share it further, as he wishes, but it never becomes family or group property. The men, women, and children may cook their pieces when and as they wish, often roasting bits in the coals and hot ashes and eating them alone at odd times. Or someone may start a big pot boiling and several people will bring their pieces to put into it at the same time, each taking his own piece out when it is cooked.

[261] The sense of possessing one's own piece personally is, I believe, very important to the !Kung. It gives one the responsibility of choosing when to eat one's meat and struggling with hunger as best one can when it is finished, without occasion or excuse for blaming others for eating more than their share.

224 261 It has often been reported that, when Bushmen kill an animal, they gorge themselves until they can hardly walk. We have seen the Nyae Nyae !Kung eat hearty meals of meat when plenty appeared and they had been long without, but nothing more than we considered a normal amount.

15: Marshall E-5 (1951-1961) 1965
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other genital operations are not practiced by the !Kung. The *Choma* is not compulsory; most boys take part but a few refuse. *Choma* owners do not form a corporate sodality. !Kung society has no such units except kinship groups.

Another ceremony for boys, which is presumably ancient and traditionally Bushman, must be performed before a boy can marry. This ceremony is performed twice for each boy, individually, on the occasion of his first killing a large game animal, once for the first male, once for the first female. The meat is cooked at a special fire, which women must avoid, and is eaten ceremonially by the men. The boy is scarified, by his father or another male relative, on his right side for the first male animal, on his left side for the first female. Little vertical cuts are made in his skin in lines on his arms, chest, back, and forehead, and a paste of charred meat and fat is rubbed into them. This is to ensure his seeing well, shooting well, and having a heart that will say to him, "Why am I sitting here in the werf? Why am I not out hunting?"

The passage from childhood to adulthood is marked for a !Kung girl by a ceremony at her first menstruation. The girl is isolated in a special scherm for the duration of the flow only. She must be covered by a kaross because the sun must not shine upon her, and her feet must not touch the ground. When she must go out to urinate or defecate, she is carried on the back of the old woman (not her mother) who attends her. It is not the menstrual blood but the girl herself who must be kept from touching the ground. She would get thin if she disregarded this taboo. Men and boys must not look at the girl and she must not look at them lest the men become highly visible to animals and unable to get near enough to them to shoot.

Every day that the girl is in the menstruation scherm, the women who are present and one or two old men dance a special dance called the Eland Dance and sing a special cycle of First Menstruation music. The Eland Dance is full of sex symbolism. The two old men should be free from even the most attenuated, symbolic extension of the incest taboo with respect to the girl, and it follows that they should have what is called the joking relationship with her. The usual strict modesty of the women is set aside. They take off their karosses (leaving their aprons on, however) and hang strings of beads from their waists down over their bare buttocks. The old men, with forked sticks tied to their heads to represent eland horns, imitate the gait and carriage of elands, and dance among the women with subtly erotic gestures. The other men and boys of the werf must stay at a distance.

When the girl stops menstruating she is washed, rubbed with *tsi* and fat, and her face is painted with red lines. She then may go among the people again, but the first time she takes water from the water hole and the first time she cooks and eats veldkos, the water and veldkos must be

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The *Choa* Ceremony The mother takes the girl's hands to scrape the tsi out of the ashes.

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choa-ed. The old woman who attends her performs this part of the ceremony (or her mother may do so). She scrapes a root called *sha sha* into the water hole. To *choa* the veldkos, the old woman takes the girl's hands in hers and together they place the veldkos in the fire. When it is cooked, they scrape it out together and the old woman puts *sha sha* in her mouth, chews it, and blows on the girl's hands and on the veldkos. This protects the girl from having an upset stomach. Each veldkos must be *choa*-ed the first time the girl eats it after the First Menstruation ceremony.

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No ceremonials mark subsequent menstruation periods, and the women do not seclude themselves during the flow or avoid gathering veldkos or dipping water from the water hole. They continue only to practice certain avoidances that in general have to do with men's hunting. The menstruating woman must not touch hunting gear; it would be very bad, for the arrows would be useless. She must not have sexual intercourse with her husband; it would make him tired and thin. Men in the years of their hunting prime should not talk or listen to talk about menstruation, for to do so might make them lazy in hunting.

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The girls who are married before their first menstruation have the same menstruation ceremony when the time comes as do the unmarried girls.

There is no genital mutilation practiced among the girls and women of the !Kung. Girls are scarified, but not at the time of the menstruation ceremony. The scarification is begun when the girl is about seven or eight and is continued little by little over several years. Stripes are made on the legs,

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824 is not eaten. Next is a casing of granular-textured fruit
262 which is eaten. The fruit encloses the nut itself. This consists of a thick outer shell which must be cracked open with the nut-cracking stones. Within the thick shell is a softer inner shell which encloses the nut kernel which is the staple of the Bushman diet. This inner kernel is "packaged" within four protective layers and this explains its remarkable storage properties.

824 In the late summer and autumn months the Bushmen eat
252 large quantities of both the fruit and the nut. First the women boil potfuls of whole fruit in order to separate the outer flesh from the hard shell. The flesh of the fruit produces a delicious fruit puree that tastes like stewed prunes. After the fruit is eaten, the nuts themselves are set aside for later cracking and eating.

184 The summer hunting situation appears to vary from camp
221 to camp. At the !Gausa camp very little hunting was done.
224 The resident men assisted the Bantu in cattle herding and they
[177] received calabashes of sour milk as payment. At Characharaha
648 the men hunted more, killing gemsbok, python and porcupine.
[464] At one summer camp, Mokoro, where there were no Bantu resident, two young men killed four large buck in the space of one month (two kudu and two gemsbok). This Mokoro camp was an
[177] unusually successful one. The availability of cows' milk and meat no doubt lessens the men's incentive for hunting

221 Unfortunately spring is the most difficult season for the
433 Herero as well as for the Bushmen. The good grazing for livestock is miles distant from the waterholes. Consequently the cattle are in poor condition and their yield of milk is low.

251 It would be useful for the Bushmen to amass a surplus of food in anticipation of this scarce season. However, none of the 15 independent camps observed ever kept more than a few days supply of vegetable foods on hand. Surplus accumulation was not a feature of Bushmen food strategy except for one instructive case.

There was a noticeable attempt to create a small surplus
251 in the form of dried meat and hides. Each family maintained
285 a storage basket in the crotch of a young tree. By weaving a framework of branches and palm fronds and lining this with grass, they built up a rough basket for storing weapons, water containers and small amounts of food. The storage basket was built five feet above the ground which kept its contents safe from the reach of dogs and children. If a day's hunting had been unsuccessful, the members of a camp could invariably produce an emergency ration of dried meat or, more often, dried hide for the evening meal. People saved scraps of dried hide of kudu, gemsbok and wildebeeste from kills made weeks or
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252 months previously. These scraps were softened by boiling or
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251 were roasted in the coals of the fire and then pounded to
252 the consistency of coarse meal in the wooden mortar. This
262 roasted hide had the taste and texture of crisp crackling and was delicious when pounded and mixed with the flesh of roots of the genera Coccinia, Walleria and Eulophia. These stores of dried hide and meat did not serve as a staple surplus so much as an emergency delicacy to brighten the diet when a day's hunting had been unsuccessful.

221 The major food strategy during the hot dry spring was
222 the 7-14 day trip to the waterless country where mongongo nuts
312 were still plentiful. At these camps the only source of
361 water was the juice from the roots of Fockea monroi. Fockea
824 has an uneven distribution in the Dobe area. The Bushmen must camp in a nut forest that is in close proximity to patches of Fockea. The maximum period that a group was observed to live on Fockea roots was two weeks. The limitation is set by the density of Fockea plants in an area, and the amount of fluid that each plant holds. Life at the Fockea patches is difficult because people have to work hard to obtain water as well as food. Each Fockea root storage organ contains 8-16 ounces of recoverable moisture. Thus a daily ration of 72 ounces of water can be obtained by digging out 5-10 Fockea roots.

312 But the dilemma of living on Fockea lies in the fact that
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exchanged from hut to hut, the women going to one hut, the men to another, and so on. Only the owners sit in a hut, while the visitors gather round the fire outside. The little children play about everywhere, the bigger boys and girls by themselves. There is no fixed time for going to sleep. As a rule the people turn in to bed fairly early, but if it is a fine evening dancing may be started and kept up till late, everybody taking part except the old people and the little children.[1]

Food and Fire

The Bushmen will eat almost anything that can be eaten. Of animal foods the favourite is game of all kinds, when it can be obtained, and they are also very fond of hare, spring hare, guinea fowl, korhaan, partridge, ostrich, and other birds, as well as birds' eggs. Fish too are eaten wherever they can be caught, and among the Bushmen of the Okavango swamps are a staple article of diet. Anteaters, ant bears, tortoises, porcupines, bull frogs, snakes, and lizards are greatly relished, while among insects locusts, scorpions, beetles, young bees and honey, termites, flying ants and ants' eggs are also eaten. In fact all kinds of living animals are made use of as food, with the almost universal exception of the baboon and the hyena—the former " on account of its being so like a man ", the latter " because it eats human corpses ".

The most important vegetable foods in the Southern and Central Kalahari are the *tsama* (*Citrullus vulgaris*), " uintjies " (*Cyperus edulis Dtr.*), *Grewia* berries, and the *//noun* (*Bauhinea esculenta*); in the Namib the */naras* fruit (*Acanthosicyos horrida Welw.*) forms almost the sole article of diet when in season; while as one proceeds northwards various fruit-bearing trees appear, such as the wild fig, palm, omungete nut, wild orange, omuande, and omuve. In addition numerous other varieties of edible roots, berries, cucumbers, tubers, melons, and ground nuts appear in great profusion during and after the rainy season, when they form the principal part of the daily menu.[2]

Much of the food is eaten raw, but the Bushmen know how to prepare and cook it. Each family prepares its own food. Cooking

[1] Passarge, op. cit., 44 sqq.; D. F. Bleek, *The Naron*, 32; Fourie, " The Bushmen of S.W. Africa," 88.

[2] Stow, *Native Races of S. Africa*, 54 sqq.; von François, *Nama und Damara*, 234–5; Schultze, *Aus Namaland und Kalahari*, 659 sqq.; Passarge, op. cit., 44 sqq.; Kaufmann, " Die Auin, " 139–40, 144 sqq.; Werner, " Ueber die Heikum- und Kungbuschleute," 253–5; Dornan, *Pygmies and Bushmen*, 114 sqq.; D. F. Bleek, op. cit., 6–7; Fourie, op. cit., 98 sq.

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Cooking

252 is done chiefly by the women, assisted by the children; in exceptional
[462] cases the men also may cook. Wild cucumbers, nuts, bulbs, and similar plant foods are baked in hot ashes covered with cinders. A bright fire is made and allowed to die down, a hole is scraped in the ashes with a flat, paddle-shaped wooden scoop, the food put in and covered over. It is then eaten whole or in the form of soup or porridge, after being pounded up in wooden mortars or on a stone and mixed with boiled blood. Birds, snakes, small antelopes, etc., are baked in the same manner; ants are similarly treated, and then sifted through a mat of loosely-woven reeds, while locusts are either baked or boiled. *Grewia* berries are sometimes eaten as picked, stone and all, sometimes stamped in the mortar and swallowed uncooked. Some specially dainty kinds of meat are roasted over the fire on a wooden spit stuck into the ground. Other kinds of meat, again, as well as stamped
[439] locusts, *tsama* seeds and foods obtained from the white man, such as mealie meal, are cooked with water.

The "tame" Bushmen now use any sort of receptacle, such as a
415 [439] paraffin or paint tin, for cooking purposes; the Auen and Naron in their more primitive condition used wooden pots, made by themselves or obtained by barter; while among the more Northern tribes clay pots obtained by barter from the OvaMbo and other Bantu tribes are sometimes found. The actual manufacture of clay pots by the
[184] Bushmen themselves seems to have been restricted to the tribes
[323] south of the Molopo. Food is eaten direct from the pot or from plates
[264] and bowls made of wood. Wooden spoons are sometimes found among the Northern tribes, but generally either the hands or tortoise-shell spoons are used in eating.

Fire is everywhere made by drilling a thin hard stick in another,
372 somewhat softer, in which there is a notch (Plate IX). This second stick is held firmly on the ground by one foot, while the drill-stick with its lower end pressed into the notch, is twirled rapidly between the hands until sparks come. A little dry grass is in readiness to catch the spark, and when it has caught alight dry wood is gradually added until a good fire has been set going.

In this connection reference must be made to certain special
372 observances relating to fire which have recently been recorded by
622 Fourie about the Heikum. "All fire," he says,[1] "is the property of the chief. The first fire kindled by him is regarded as essential to the welfare of the community. Every man and woman knows how to

[1] Op. cit., 87,

2: Schapera E-4, 5 (no date)1930
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262 [114] to these taboos is unfortunately so fragmentary that little can be gathered of the ideas underlying them. Several of them are undoubtedly connected with wider ritual observances, e.g. the taboo [821] imposed on menstruating girls, and again that associated with a [821] certain belief about the rain; but of the others no full explanation is [773] available, although the taboo on the portion of the hare may possibly [761] be linked up with the Bushman myth of the origin of death, in which [825] the hare plays the part of the fateful messenger who distorts the promise of immortality sent to mankind by the moon.

Among the Naron, again, "It does not seem," says Miss Bleek,[1] "as if many taboos in the food line still existed. Paauw meat and ostrich eggs are chiefly given to old men as the greatest delicacies. Some say young children, or girls till they have had their first baby, are not to eat steenbok, lest they remain small, but others tell me that all meat is eaten by everyone. Honey touched by a baboon must not be eaten, or you will die." Among the Auen, young girls and boys apparently may not eat game at all, otherwise they will remain thin; while water [841] and food collected by a menstruating woman may be partaken of only by herself and old people—it "makes others weak".[2]

About the Heikum we have far more information on this point, 224 thanks to the excellent description given by Fourie of certain [114] of their hunting observances.[3] The details he gives throw such a wealth of new light upon this aspect of Bushman life that they may be quoted in full. "After an animal has been shot it is followed by the hunter until it expires or until nightfall when he returns to the *//gaus* (camp). The following morning the whole community takes part in the search for the carcass, as the previous day's tracks had in all probability been effaced during the night by other animals. 224 The searchers spread out on a wide front and keep a very sharp lookout 252 for the presence of vultures. After the carcass has been found it is [462] skinned by the men. The belly is then opened and the entrails removed and cleaned. Bags are made from the stomach and into these the blood is collected. The animal is next cut up and, after this has been done, the liver is roasted and eaten by the men. The skin, if suitable for the [281] purpose, is cut into sandals, bowstrings, etc., on the spot. The meat is [462] then removed to the *//gaus* by the men who may occasionally be assisted by the women. On arrival at the *//gaus* all the meat is laid

[1] *The Naron*, 7. [2] Kaufmann, "Die Auin," 140, 157.
[3] "The Bushmen of S.W. Africa," 100–2; cf. *idem*, "Customs of the Hei-//om Bushmen," 54–6.

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on the ground under the */hais* either on sticks which were used in carrying it or on branches. The *gei-khoib* (chief) now comes forward and if he finds that the */hei-/ais* (fire under the tree) has gone out he returns to his hut, brings fire and wood and re-lights it. If he is absent when the meat is brought in he is immediately sent for, the meat in the meantime being hung on the */hais* (tree in centre of camp). After having kindled the fire the *gei-khoib* instructs one of the men—the one who has shot the animal is excluded from doing any work—to open the bones and collect the marrow. The blood and the marrow are placed on the fire in separate pots and at the same time some of the meat for the men is also cooked. As soon as the latter is ready for eating the *gei-khoib* removes a piece from the pot and 'tastes' (*tsa-tsa*) it. This is done by holding it between the teeth and fingers and cutting off and eating a morsel or two. The meat is now safe for the members of his group to eat. The cooked meat is then pounded with a stone, teased between the fingers and thrown into the pot containing the blood. The melted marrow is next stirred into the mixture of blood and meat. The resulting dish is known as */koms*.

"All meat killed with bow and arrow is *saxa* [taboo] and may not be partaken of until it has been tasted by the *gei-khoib*. The liver, however, is eaten by the men immediately after the animal has been cut up and is thus excluded from the scope of the *saxa* as far as men are concerned, but to the women it is *saxa*. All parts of the animal are eaten, but certain categories of people may eat only certain prescribed portions of the animal, the rest of the meat being *saxa* to them. For example, the wife of the man who killed the animal is entitled to the superficial covering of meat and fat of the hind quarters, the entrails and the trotters (*/ei-ti*). Her portion is known as the */noe-di* and is the only meat which may be partaken of by women. The */noe-di* is shared by her with the other women, including the */kham-khoidi* (adolescent girls) and with the young children. The */noe-di*, however, may not be eaten until the *gei-khoib* has tasted the meat. It is cut on the spot where the carcass was found by the person who shot the animal and handed over to the latter's wife after arrival at the *//gaus*. It is not brought under the */hais*. It is cooked by the wife of the hunter on the fire in front of her hut after which the other women come and get their portions and eat it in their own huts. The */kham-khoidi* obtain their meat from their respective mothers, as also do young children still living with their parents. If women partake of any other meat than the */noe-di*, the poison of the arrow will not act when an

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224 262 animal has been shot. The meat which may be eaten by the *axarogu* (youths) is known as */om-//gani*, and includes the flesh of the abdominal wall, kidneys, etc., and the genital organs such as udder, testicles, etc. It is prepared by the *axarogu* themselves over their own fire at 224 252 the *axarogudi ǂgaos* (young men's hut). The person who shot the 262 animal receives the ribs and shoulder blade of one side. He may prepare his portion either under the */heis* or over his own fire. The ribs must be cooked and the shoulder blade roasted because they taste better when done in this manner. The rest of the meat is *soxa* to him, and if he eats any other part, e.g. the *ǂkoms*, he will not meet with success in hunting because the poison will weaken and refuse to act. The parts of the animal which go to the *gei-khoib* are known as the *so-eis* and include portions of about two finger-breadths in size from each quarter, from each side of the back and one rib from each side. These are strung on a thong or cord and hung up for his sole use. *So-eis* [574] may, however, be shared by him with a visiting *gei-khoib*. The *gei-khois* receives her share from the *ǂnoe-di*. The *gei-khoib* may also partake of the meat for the remainder of the men called the *so-//gani*, [264] under which is included the *ǂkoms*. The latter may be eaten only under the */heis*. After it has been prepared each man brings his wooden bowl or other receptacle and helps himself. Any man whose wife is [841] menstruating will, however, not partake of the *ǂkoms* as it contains blood. The rest of the meat is divided among the men by the *gei-khoib*, and is prepared and eaten at their huts.

"A similar procedure is adopted in connection with meat killed by 224 the members of an outlying *//gaus*, the *gei-khoib* likewise having to 262 taste it before it may be partaken of. He may either proceed to the 622 *//gaus* concerned, or if the distance to be travelled is considerable, all the meat will be brought to his *//gaus*. In all such cases the *so-eis* is brought to him by the messenger sent to notify him of the kill. When he visits a *//gaus* for this purpose he kindles the */hei-/ais* with [372] fire from one of the huts, and, after having tasted the meat, returns to his own."

Apart from the light it throws upon certain functions of the chief, 114 224 this account illustrates admirably both the existence of special ritual [622] observances in regard to game killed in the chase, and the fact that food obtained in this way is shared among all the people present at the encampment. This latter feature has also been noted by other writers on the different Bushman tribes,[1] and it can safely be asserted

[1] Passarge, op. cit., 55; Kaufmann, op. cit., 155–6 D. F. Bleek, *The Mantis*, pp. viii–ix; *idem*, *The Naron*, 16.

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224 where bush is scarce, frequently seek shelter during the day in the numerous anteater holes. Finding a morning spoor leading to one of these holes, the hunter, silently as a cat, creeps up to the hole and plants himself before it, leaving a small open space under the left arm, for which the buck charges, when it is pinned and dealt a stunning blow over the head with the kirri held in the right hand. In this way numbers of these animals are killed. The kirri is also used for knocking down hares and game birds; it is thrown from a distance of twenty-five to thirty feet, and generally stuns the game so that it is easily secured. Birds are preferably aimed at just when they are rising from [223] the ground, as the slightest blow will then upset their balance and bring them down before they have time to escape.

Bigger game, such as the giraffe, eland, hartebeest, ostrich, and springbok are generally hunted with the bow and arrow, which are used all the year round. As a rule the men hunt alone, or a man and boy together. They find the spoor of an animal and follow it, finally creeping up to the leeward side on hands and knees, using all possible cover, and then raise themselves gently to shoot. Or else they lie in wait for the game on its way to the water, or in the vicinity of a place where it comes to lick salt. The men hide themselves between stones, or dig a hole in the ground, piling up the earth in front and sticking green branches on top to deceive the game. Occasionally, again, several men surround game in a pan, some standing to leeward ready to shoot, while the others drive from windward, approaching from different quarters.

Once he has wounded an animal, the hunter takes up its trail and follows it leisurely, knowing that he will ultimately reach the corpse, if the poison on the arrow has been at all effective. There is always the great danger, however, that if the buck has run too far, and he takes too long to reach it, hyenas or the vultures may have got there first. Also care must be taken that the animal does not run out of [423] the hunting territory, as it is then as good as lost, or, where the [621] neighbouring band is friendly enough to permit of its being followed over the border, the meat must be shared with the members of that band. When at last he comes up with the buck the hunter, if it is not already dead, dispatches it with the spear or kirri. He then cuts [252] it up, roasts and eats some of the meat, and carries the rest home; or, if near the huts, he may carry the whole buck home. If it is too big to manage, he will light a fire to summon the other members of the band to the spot. Everybody shares in the meat, which is doled